

approach

MAY 1982 THE NAVAL AVIATION SAFETY REVIEW





Uncovering future mishaps

EVERY so often, we in naval aviation are miraculously treated to pieces of visual history. In Iceland last fall, a "lost" P-2 *Neptune* "appeared" after shifting winds displaced 28 years of snow. The plane had made its last UHF transmission just before flying into a storm north of Keflavik in 1953.

In December, an SBD *Dauntless* was found by a Navy deep salvage submarine beneath 3,800 feet of Pacific Ocean. After identifying and tracing the BUNO, it was found that the bomber had sunk in 1942 after a practice dive bombing run. The aircraft has been uniquely preserved, and means of raising it to the surface are being considered by corrosion experts who'd like to make a study of the airframe.

Finally, an SNJ trainer was found in January, buried since 1954 beneath a tomato patch in a farmer's field near Summerville, Alabama (sound familiar?). I can still remember flying PELs near Summerville and shouting "Pan, Pan, Pan" into my ICS on the way to high key.

When curiosities like these are unearthed, there's usually a lot of media interest. People wonder what it's like for "ghost" aircraft to be flying in the twilight zone all those years before surfacing to reality and becoming completely documented mishaps.

I feel we should be able to discover ways to prevent future mishaps even more easily than we can uncover the remains of past mishaps. That goal has everything to do with hazard reporting and mishap prevention, the subjects of Russ Forbush's lead article, M.A.S.H. II, on page 2. Not only does the article give a historical perspective on how we've made aviation safety happen from 1950 through 1981, it also starts one thinking about what we can do to reduce mishaps in the future.

Of course, *APPROACH*'s target is zero mishaps, beginning right now. As a safety publication, we can afford to grandly ignore many so-called practical realities. After all, in 1954, when over 700 naval aircraft were destroyed during peacetime operations, who ever thought we'd be where we are now? Mishap prevention. It's the best way to uncover a safe future in naval aviation, for all of us. And unlike practical reality, a little idealism never hurt anybody!

LT Colin W. Sargent

approach

Vol. 27 No. 11
NAVAIR 00-75-510



Research and development in ejection systems since 1950 have contributed significantly to making aviation safety happen. (See the lead article on p. 2.)
Official Navy photo.

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M * A * S * H

Back in 1970, an article titled *M. A. S. H.* appeared in the August issue of *APPROACH*. Obviously, its contents had nothing to do with the hit movie, but those four letters inspired the formation of four words fundamental to the success of naval aviation — Make Aviation Safety Happen. Since 1970, the naval aviation community has done much to increase its ability to Make Aviation Safety Happen. This is best exemplified by the 5.11 Class A flight/flight-related aircraft mishap rate in 1981, the lowest rate ever recorded. Let's review some of the highlights of past years and then peer into the crystal ball for some guidance on how to continue to Make Aviation Safety Happen in the future.



NORMALLY, I try to avoid using statistics in an article because, so often, they can be bent and twisted to serve the interests of both the preparer and user. But the following aircraft mishap statistics for the years 1950 through the present are worthy of print (see Fig. 1). They truly surprised me when I first looked them over — hopefully, you'll have the same reaction.

We've come a long way since 2,229 major accidents in 1953, an accident rate of 54.83 in 1952, and 776 destroyed aircraft and 536 fatalities in 1954 (these are highs for the years between 1950 and 1981). Compare these stats to those for 1981, and it's obvious that today's aviation personnel are indisputably better able to Make Aviation Safety Happen than their counterparts back in the fifties and sixties. Heaven only knows what our aviators would be flying today if a number of important innovations hadn't been introduced into naval aviation during the past 30 years to improve safety and increase readiness. A few of them are discussed below.

On 1 December 1951, the Secretary of the Navy disestablished the Flight Safety Branch of the Chief of Naval Operations and established the Naval Aviation Safety Activity, located at NAS Norfolk, Virginia. It was later redesignated the Naval Aviation Safety Center in April 1955. The Center received its first flag officer in January 1957, as Director. On 11 March 1958, the Center was placed under the military command of CNO, and the title of the officer in command was changed from Director to Commander. In May 1968, the Naval Aviation Safety Center and the Submarine Safety Center were combined to form the Naval Safety Center. Later, surface ship and shore safety programs were added, creating a nucleus for all Navy safety programs.

On 12 January 1953, landings and takeoffs were conducted onboard the Navy's first angled-deck carrier, the USS ANTIETAM, with the ship's CO making the first landing (in an SNJ). During the next 4 days, multiple launches and recoveries were made using six aircraft models operating in winds of varying force and direction.

When an S2F-1 was catapulted from the deck of the USS HANCOCK on 1 June 1954, it served as the initial operational test of the C-11 steam catapult. During the remainder



By Russ Forbush
APPROACH Writer

Yearly Major/Class A F/FR Mishap Statistics

(does not include losses incurred in combat)

FY	Hours	Major Accidents		Destroyed Aircraft		Fatal Accidents		Fatalities		Dollar Cost
		No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1950	2,770,408	1,488	53.71	481	17.36	137	4.95	227	8.19	
1951	3,172,111	1,714	54.03	675	21.28	185	5.83	391	12.33	
1952	3,767,765	2,066	54.83	708	18.79	224	5.95	399	10.59	
1953	4,351,768	2,229	51.22	714	16.41	238	5.47	402	9.24	
1954	4,378,468	2,213	50.54	776	17.72	263	6.01	536	12.24	215,941,667
1955	4,352,496	1,662	38.18	611	14.04	225	5.17	366	8.41	224,009,174
1956	4,348,772	1,456	33.48	574	13.20	242	5.56	406	9.34	226,654,473
1957	4,251,109	1,298	30.53	613	14.42	243	5.72	358	8.42	292,429,185
1958	3,901,150	1,106	28.35	524	13.43	195	5.00	387	9.92	327,855,150
1959	3,491,481	896	25.66	461	13.20	176	5.04	309	8.85	310,511,478
1960	3,387,560	655	19.34	360	10.63	155	4.58	268	7.91	266,441,050
1961	3,512,603	603	17.17	336	9.57	146	4.16	279	7.94	287,767,506
1962	3,710,782	576	15.52	329	8.87	132	3.56	264	7.11	282,929,550
1963	3,528,760	513	14.54	277	7.85	109	3.09	216	6.12	280,688,030
1964	3,702,920	506	13.66	290	7.83	118	3.19	197	5.32	321,268,590
1965	3,653,734	457	12.51	287	7.85	105	2.87	226	6.19	350,962,720
1966	3,739,856	476	12.73	296	7.91	105	2.81	232	6.20	384,267,230
1967	3,723,203	508	13.64	313	8.41	133	3.57	357	9.59	398,934,000
1968	3,626,458	513	14.15	335	9.24	130	3.58	427	11.77	470,413,000
1969	3,756,984	530	14.11	356	9.48	136	3.62	290	7.72	509,597,190
July-Dec 69	1,636,526	216	13.20	158	9.65	64	3.91	160	9.78	216,022,000
CY										
1970	2,978,433	402	13.50	264	8.86	105	3.53	231	7.76	446,608,000
1971	2,790,773	258	9.24	180	6.45	64	2.29	117	4.19	335,424,000
1972	2,662,829	252	9.46	170	6.38	67	2.52	129	4.84	355,884,000
1973	2,371,502	206	8.69	144	6.07	50	2.11	122	5.14	328,430,000
1974	2,151,535	147	6.83	106	4.93	43	2.00	81	3.76	220,450,000
1975	2,141,506	137	6.40	94	4.39	34	1.59	67	3.13	264,571,000
1976	1,974,772	128	6.48	88	4.46	36	1.82	73	3.70	263,675,000
Class A F/FRM										
1977	1,981,328	122	6.16	104	5.25	41	2.07	119	6.01	325,136,922
1978	1,948,671	129	6.62	102	5.23	51	2.62	129	6.62	423,271,107
1979	1,911,859	117	6.12	95	4.97	41	2.14	79	4.13	316,038,105
1980	1,936,360	129	6.66	112	5.78	43	2.22	91	4.70	396,709,868
*1981	1,955,994	100	5.11	87	4.40	40	2.04	83	4.24	393,120,570
*1982	477,100	28	5.87	22	4.61	10	2.10	13	2.72	116,468,366

(through March)

(rates based on 100,000 flight-hours per occurrence)

*Subject to update

Fig. 1



The above photo shows the wreckage of an SNJ that crashed in Alabama in FY 1955. It was one of the 611 naval aircraft destroyed that year.

of that month, a total of 254 launches were made with *Trackers*, *Skyraiders*, *Banshees*, *Furies*, *Cutlasses*, and *Sky Knights*.

4

Operational evaluation of the mirror landing system installed on the USS BENNINGTON began on 22 August 1955. The first day landing using the device was made in an FJ-3 *Fury*, the first night landing in an F9F-8 *Cougar*. The Fresnel lens optical landing system was first installed and used aboard the USS RANGER in 1960.

On 21 April 1957, the USS ANTIETAM reported for duty to the Chief of Naval Air Training at Pensacola, providing that command with its first angled-deck carrier for use in flight training.

The Martin-Baker ground level ejection seat was demonstrated at NAS Patuxent River on 28 August 1957. An RAF pilot made a successful ejection from an F9F-8T flying just above the ground at 120 mph.

In July 1961, the first NATOPS manual was promulgated with the distribution of the HSS-1 manual. As the NATOPS system developed, NATOPS flight manuals were issued, beginning in late 1963. Further publications included the NATOPS manuals containing generalized instructions covering areas such as carrier operations, instrument flight, and landing signal officer procedures.

Installation of the Pilot Landing Aid Television System (PLAT) was completed on the USS CORAL SEA on 14 December 1961. This was the first carrier to have the system installed for operational use. The PLAT system quickly proved useful for instructional purposes and analysis of landing mishaps, making it a valuable tool in the promotion of safety.

Some of the other safety improvements which have been introduced since the mid-1960s follow:

Automatic Carrier Landing System (ACLS)

Sequenced centerline lights on CVs

Night Carrier Landing Trainer

Cockpit heads-up displays

Improved flight simulators

Increased carrier refresher training during turnaround cycles

Helicopter emergency flotation gear

System safety is considered during initial aircraft and component design stages. This allows for early detection and correction of hazards and has helped reduce the mishap rate for new production aircraft.

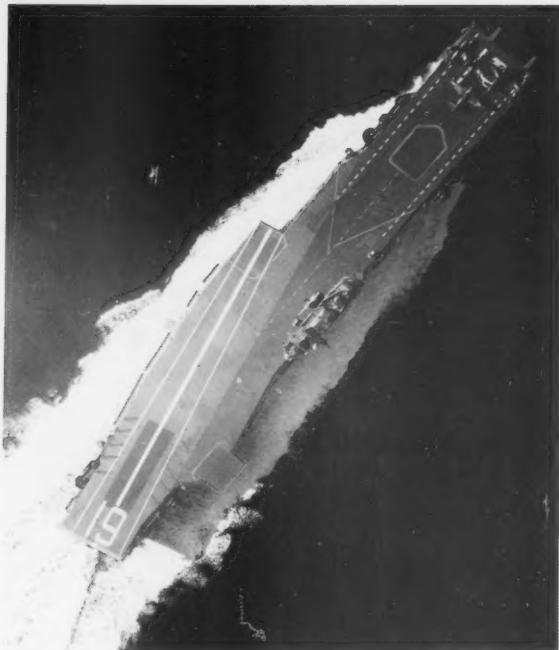
The Aviation Safety Programs at the Naval Postgraduate School, Monterey, California, are now more oriented toward mishap prevention than mishap investigation.

The Naval Aviation Maintenance Program (NAMP) is the NATOPS of maintenance and has done much to improve aviation safety.

The FLU-8/P Automatic Inflator for the LPA has reduced drownings and near-drownings of incapacitated aircrew personnel following ejection. The mechanism is saltwater-activated and inflates the LPA upon water entry with no action required by aircrew personnel.

The four-line release is incorporated in all Navy/Marine Corps 28-foot flat canopy parachutes. Its primary function is to reduce oscillations that frequently cause motion sickness and hazardous landings. Other recent developments in life support equipment have also improved the lot of flight personnel.

APPROACH (USPS 016-510) is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price is \$15.00 per year; \$3.75 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.



USS HANCOCK (CV 19) was the first carrier equipped with the C-11 steam catapult.

Now that we've sampled some of the improvements made in operating procedures and equipment during the past 30 years, let's review some of the things staff, flight, maintenance, and support personnel are doing to Make Aviation Safety Happen.

First, and most important, command management, from the CNO down, is taking an active role in the aviation safety program. Lip service is being replaced by "hip" service, defined as a keen, informed awareness of, or interest in, the newest developments. TYCOMs, wing commanders, COs, and OICs are insistent that their subordinates adhere to standard operating procedures. Communications are flowing at all levels of command to keep everyone informed about a hazard or other vital safety information. This is highly visible in the message traffic moving through the Safety Center. Unfortunately, there are still a few in command who haven't learned to Make Aviation Safety Happen, and without 100 percent involvement, we'll continue to have mishaps which could and should have been prevented.

Pilots, along with other aircrew, maintenance, and support personnel, are also becoming more active in the aviation safety effort. A good example of this is the large number of articles being submitted to the Naval Safety Center by fleet and shore activity personnel for publication in *APPROACH* and *MECH* magazines. In most instances, the articles are informative, well written, and provided by those people doing the job today. Personal experience or knowledge provides our readers with safety information that could prove invaluable to them now or at some time in the future. Last year's all-time low mishap rate clearly indicates that most aviation personnel are operating by the book. Nevertheless, there is room for improvement



USS BENNINGTON (CV 20) was the first carrier to have an Optical Landing System (OLS) installed onboard.



The first Pilot Landing Aid Television System (PLAT) was installed onboard USS CORAL SEA (CV 43).

in this area, since a causal factor for many mishaps is personnel error associated with failure to follow standard operating procedures.

Mishap reporting has vastly improved over the years. With the promulgation of OPNAVINST 3750.6M (the Naval Aviation Safety Program), mishap reporting has become a whole new ball game. Since the program is based on hazard detection and hazard elimination, its success largely depends on the quality of mishap investigation reports (MIRs) submitted by aircraft mishap boards (AMBs). Thorough investigations can lead to the detection and elimination of hazards and thus provide an invaluable service to aviation safety. Hazard reporting is another important part of the program, since it is a means for identifying and correcting a hazard before a mishap occurs. Additionally, hazard reports do not contain privileged information, and their contents can be given the widest possible dissemination. In summary, effective mishap and hazard reporting is essential if future mishaps are to be avoided. When we detect and eliminate, we Make Aviation Safety Happen.

In conjunction with mishap reporting, the Naval Safety Center is responsible for administering the Aircraft Accident Report Recommendation (ARREC) program. This program's purpose is to ensure that recommendations contained in MIRs are assigned an ARREC number and corrective action is taken to prevent future aircrew injury and aircraft damage. Naval activities responsible for the corrective action are identified so that their progress in correcting the hazard may be monitored to completion. At any given time, there are hundreds of ARRECs in progress throughout the naval aviation community.



USS RANGER (CV 41) was the first carrier to have the Fresnel Lens OLS installed onboard.

New emphasis is being placed on assigning pilots and other aircrew personnel to a particular aircraft and mission based on their individual strengths and weaknesses. Too often in the past, mishaps have occurred because pilots and aircrews were scheduled for missions beyond their capabilities. In many mishaps, the investigation revealed that the schedules officer was solely responsible for mission assignment but was not fully aware of the qualifications of those assigned. The CO, XO, operations officer, and others involved with pilot and aircrew training must ensure that the pilot and aircrew qualifications X'd out on the board truly reflect a flier's ability to fly a given mission. Further improvements in this area can't help but reduce mishaps and, in so doing, Make Aviation Safety Happen.

What remains one of the best aspects of the Naval Aviation Safety Program is our forthrightness. When an aircraft crashes, the naval aviation community doesn't attempt to shroud the details in darkness with old fashioned "hush hush" techniques.

There are few ways to learn from icy silence. Instead, when mishap findings of fact are completely documented, we do our level best to get corrective information back into the hands of the fliers — to show them *why* a mishap has occurred. Without this honest and productive approach, we'd still be lost in a holding pattern, back in the crewcut years. It's one reason I'm greatly proud of being a naval aviator.

This article has highlighted only some of the many improvements made in aviation safety during the past 30 years. There are many in the mill now, and more can be expected in the future. Still, regardless of what new operating procedures and equipment are made available, the ultimate responsibility for a successful naval aviation safety program lies with the operators, both in the air and on the ground. The mishap rate fell to a new low last year, and the opportunity for lowering the rate even further is entirely possible. Extra effort by all hands can make it so. Do it, and you will Make Aviation Safety Happen! ▶



Definition of Minimum Fuel

THE FAA has issued a notice to controllers, briefing them on the application and use of the term "minimum fuel." The Air Transport Association has also issued a memorandum to advise pilots of the definition of the term. In the past, there have been some misunderstandings by both pilots and controllers as to what "minimum fuel" means.

The 1982 Airman's Information Manual defines pilot and controller roles and responsibilities in regard to minimum fuel conditions as follows:

For the Pilot

- Advise ATC of your minimum fuel status when your fuel supply has reached a state where, upon reaching destination, you cannot accept any undue delay.
- Be aware this is **not** an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur.
- Be aware a minimum fuel advisory does **not** imply a need for traffic priority.
- If the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, you should declare an emergency due to low fuel and report fuel remaining in minutes.

For the Controller

- When an aircraft declares a state of minimum fuel, relay this information to the facility to whom control jurisdiction is transferred.
- Be alert for an occurrence which might delay the aircraft.

The Air Traffic Control Handbook renders the following definition:

- Use of the term "minimum fuel" indicates a recognition by a pilot that his fuel supply has reached a state where, upon reaching destination, he cannot accept any undue delay.
- This is not an emergency situation, but merely an advisory that indicates an emergency situation is possible should any undue delay occur.
- A minimum fuel advisory does **not** imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations.
- If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.

Air Transport Association Memorandum

ECL and Headwork at the Idle. An SH-2F was involved in a pax/cargo transfer between two DD 963s. The HAC was in the right seat and the copilot was in the left seat, at the controls. The aircraft was positioned on the port-to-starboard lineup line, with the mainmounts resting in the front half of the deck circle.

While holding on deck at home-plate, the pilots placed the No. 1 ECL at idle to conserve fuel. On being cleared for takeoff and given a green deck by the tower, the CP lifted the H-2 into a hover with the No. 1 ECL still in the idle position. (The takeoff checklist had not been completed prior to liftoff in accordance with NATOPS.) With the No. 1 ECL at idle, the aircraft began to slowly yaw to the right and settle toward the deck. The nose of the H-2 continued to yaw right, and then the helo landed flat on deck, facing starboard. The mainmounts were 4-5 feet from the deck edge, and the aircraft was moving forward. Again, the copilot lifted the H-2 into a hover, and again, it yawed right and settled. At this point, the right wheel entered the safety net, and the aircraft yawed right around the stationary mainmount for another 60 degrees. The mainmount then departed the safety net, and the H-2 lifted up, continued in a rapid right yaw (nose down), and completed three 360-degree rotations before positive control was gained and forward flight attained. (The No. 1 ECL had been advanced during the first complete right revolution.)

A visual inspection of the H-2 in flight revealed that the liquid spring lower attachment point was severed and the right wheel assembly was hanging. The ship's crew secured mattresses in place on the flight deck, and the aircraft landed with the right wheel assembly resting on the mattresses.

This flight hazard occurred because the pilots hurried unnecessarily to



accomplish the mission and, in so doing, were negligent in not adhering to prescribed NATOPS procedures.

The comments of the OIC of this detachment are germane and they follow: "There can be no substitute for good headwork and the proper use of established NATOPS procedures. The events described here are once again proof of that. What occurred on this flight is contrary to the way a pilot is trained from day one in flight school. Nothing can explain or excuse what happened, and it goes against any NATOPS training that the members of this crew have ever received. LAMPS at-sea operations are never routine and should not be complicated by missing a checklist. That point could not be made more clearly than it was here."

This flight came as close as possible to ending up as a mishap involving the loss of an aircraft and quite possibly a crew, and it's not the only recent occurrence of a crew attempting a takeoff with one engine at idle. It's happened in both the fixed-wing and helicopter communities. This should serve as a lesson to all multiengine aircrews that strict attention to NATOPS is a must at all times.

A Hairy Way to Lose Control. An F-4 and A-4 were scheduled for an ACM instructor training flight. Brief, man-up, departure, and entry into the operating area went without a hitch. The F-4 pilot noted no discrepancies during flight control rig checks, a 350-450-knot acceleration demo, or a canned barrel roll attack. A jinking runout/guns-defense maneuver was then initiated with both aircraft in a port turn at 15,000 feet, 400 KIAS, and the A-4 in a 1,500-foot trail position. The F-4 commenced a -1.6G pushaway, followed 4 seconds later by a +5.5G pull and a starboard reversal.

At this point, the F-4 began an uncommanded roll to the right. Opposite stick and disengaging the stab augs had no effect on recovering the aircraft. As the F-4 descended below 9,000 feet and airspeed increased past Mach 1.05, power was reduced, speedbrakes were extended, and full opposite rudder was applied. The nose of the F-4 then rose above the horizon, and rotation was halted temporarily. As the airspeed was slowed below 300 KIAS, another series of uncommanded rolls to starboard occurred. The aircraft then began to descend, and the crew

AIR BREAKS

made the decision to eject prior to the F-4 reaching 400 knots. At 360 KIAS, control was again regained with full opposite rudder and slight starboard aileron to maintain level flight. Any decrease in the amount of rudder or aileron, however, resulted in further uncommanded starboard rolls. No starboard lateral trim was available, and there was only restricted left of center stick movement.

Unable to turn right, the pilot commenced a gentle 10-degree left turn and headed back toward land. While returning to base, the F-4 rolled several more times, in spite of full opposite rudder. External inspection of the port aileron showed random movements of full deflection. The crew then decided to eject, if necessary, as close to land as possible, in order to increase their rescue chances. At 10,000 feet and nearing land, the gear was lowered, and handling characteristics were explored. Minimum control air-

speed was 200 KIAS. The flaps were then lowered, and minimum control airspeed appeared to be 180 KIAS, but any addition of power caused an immediate roll to the right. The decision was made to land, and an approach was planned that would use only left turns to an arrested landing. The final approach was flown at 170 KIAS to touchdown and an "uneventful" arrested landing.

A postflight inspection of the aircraft revealed that the aileron rod assembly was disconnected. The retaining nut had backed off, allowing the bolt to fall out, disconnecting the rod from the aileron. This allowed the aileron to receive random inputs

as the assembly rotated during aircraft movement. A broken cotter pin, a bolt, and two washers were found in the aileron area.

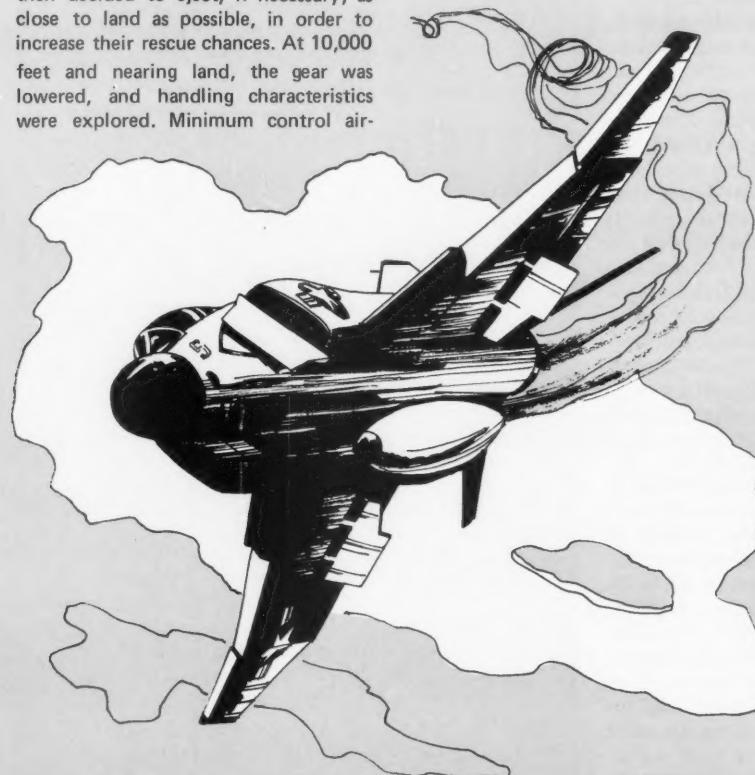
Further investigation revealed that maintenance publications require a self-locking nut with a cotter pin and a bolt safety wired to the bellcrank assembly. The nut in use was not of the locking type, and the bolt had not been safety wired. All squadron aircraft were inspected, and the same discrepancy was found on other aircraft, including an F-4 just received from SDLM.

The squadron concluded that had this malfunction occurred at a lower altitude, it probably would have led to the loss of the aircraft. Additionally, the lack of consistency in the use of self-locking nuts found in this squadron's aircraft showed a high probability that this problem could exist on all F-4 series aircraft. They recommended a one-time inspection of the two inverted bolts in each wing and the five inverted bolts in the stabilator area for proper installation and use of self-locking nuts.

In the words of the CO, "This aircraft was saved through a combination of fortunate circumstances and outstanding airmanship. Complete communication between the pilot and RIO throughout the event prevented an untimely ejection. Immediate inspection of the suspect bolts will preclude another aircrew from being placed in this *extremis* situation."

Although this hazard surfaced several months ago, F-4 squadrons would be wise to take another look at the bolts described above if they haven't been checked recently.

F-4 CFA has issued F-4 Airframes Bulletin No. 258, which requires a one-time inspection of the inverted bolts in the aileron flight control rod assembly. NAVAIREWORKFAC NORIS 191521Z SEP 81 refers. Point of Contact: Mr. Swanson, Autovon 951-7493. — Ed.



Surprise - an ice storm!

By LT Larry C. Jackson
VA-45

10

BAD weather is a hazard most experienced naval aviators learn to live with, usually by avoiding it at all costs. I hardly think that anyone with healthy survival instincts would deliberately fly into an airfield surrounded by embedded thunderstorms, with ceiling and visibility below minimums. After surviving a 3-year tour flying the A-7E *Corsair* and rolling to shore duty with VA-45, the East Coast instrument training squadron, I certainly thought I knew better. This is how I ended up flying my TA-4 into an ice storm while conducting a "routine" flight.

I was scheduled, with a replacement pilot from the East Coast *Corsair* RAG, for a roundrobin instrument training flight from NAS Key West to NAS Pensacola. It was to be no different in any way from numerous identical flights I had flown in the last 4 months (sound familiar?). The instrument procedures brief was standard and in accordance with squadron SOP and the TA-4J NATOPS. Our DD-175 weather brief was pretty good. Pensacola \pm 1 hour of the ETA was forecast to have clouds overcast at 7,000 feet, broken at 2,000 feet, and temporarily scattered at 1,000 feet, with visibility 5 miles in haze. No thunderstorms were forecast, and only light icing and precipitation were called for, in southeast Florida. In accordance with OPNAV 3710.7K, an alternate was selected — Eglin AFB. Eglin was calling for a cloud layer at 8,000 feet broken and 1,000 feet scattered, with 7 miles visibility. Based on the forecast, little consideration was given to the possibility of a weather divert. As usual, our weather briefing was received over the phone. Leaving maintenance control, I informed the RP that he would probably be under the "bag" for most of the hop, since there seemed to be little chance of encountering actual IFR conditions.

Unfortunately, our flying machine broke after man-up,

and we retired to the readyroom to await a spare. A substitute training aid was available within an hour, and we pressed on with the mission. How many times have you heard about the chain of events leading up to a mishap? In this case, the first link of the chain was forged at the hold short, awaiting take-off. I realized that our formal weather brief would be void by the time we arrived in Pensacola but, in the interest of expediency, neglected to update it. The forecast was good. We'd only be about 45 minutes late, and how bad could the weather get in less than an hour? No sweat for the ace of the gauges.

Launch and en route phases of the hop were standard. The RP didn't get an en route weather check from MacDill or Patrick, opting to wait until he could contact Pensacola Metro. Beginning our descent out of FL350, east of Crestview VORTAC, we went solid IFR. "Great training for the student," I thought as I selected pitot anti-ice. The goo was thick but no problem, with a smooth ride and only a trace of precipitation. The first hint of things to come was a controller reference to severe weather in the northwest part of Whiskey 155, i.e., very close to Pensacola. "Maybe we should get a weather check right away," I thought. The ride was getting worse in the descent, and light rime ice was accumulating. By the time Center allowed us to leave frequency, we were at Crestview at FL200, and the weather was definitely going sour. Faint alarm bells were beginning to sound in the back of my mind.

"Metro, AD 604, request current Pensacola observation and 1-hour forecast."

"AD 604, current Pensacola weather: ceiling measured 100 feet, visibility one-quarter mile in heavy rain, thunderstorms in all quadrants. No change expected for the next 45 minutes, over."

One hundred feet and one-quarter mile! The alarm bells were starting to get strident now. My anger at our inaccurate Metro brief was replaced by a concern for our fuel and divert situation.

"Metro, say current Eglin forecast."

"Roger. Eglin current observation 600 broken, 1,000 overcast, one and one-half miles in light rain, conditions constant for the next hour."

Not good, but the only game in town now. "Center, 604 is diverting to Eglin AFB."

"Roger, vector 090, maintain FL200."

OK, time to dig out the plate and glance at the approach. Sure would have been easier to study in the readyroom. Oh well, no sweat, Eglin has good PAR capability, we're home free. Boy, this will be a great sea story . . .

Unfortunately, it got better before it was over. About 30 miles west of Eglin, we encountered the worst icing I have ever seen. Approximately one-fourth to one-half inch of ice accumulated on the forward windscreens in 30 to 45 seconds. Hail and heavy rain began to pound our trusty *Scooter*. What



else could go wrong, I thought, as the airspeed began to fluctuate and drop to zero. It was definitely time to descend below the freezing level.

A rapid descent to 7,000 feet solved the icing problem, but now the fuel was getting scarce (1,500 pounds). Time to land. "Eglin Approach, AD 604, request vectors to a PAR final, minimum fuel at this time." Well, you guessed it!

"604, Eglin radar is down. Expect vector to intercept final portion of HI-TACAN RWY 19." Now we were in a wonderful box, with no fuel to go elsewhere, and only the TACAN to rely on. My heart skipped a beat as the TACAN momentarily broke lock. Fortunately, the TACAN cooperated after about 1 minute, and we executed an uneventful approach (breaking out about 150 feet above minimums) to a full stop (low fuel light illuminated) landing.

On return to homeplate, a consultation with the Metro detachment turned up some interesting details. The weather brief we received was not given by the duty forecaster. An off-duty forecaster, who was checking out of the command that same day, was trying to give his service buddy a break by answering phone requests for DD-175-1s. I wonder if he really had his mind on the job? Apparently, the individual involved gave us the brief straight from the computer, without bothering to analyze the rapidly changing conditions in the Pensacola area. In other words, we didn't get the benefit of his forecasting expertise at all. Additionally, for unknown reasons, the five most recent radar summaries for the southern U. S. had not been received; obviously, a valuable forecasting tool was absent. (How did he know there weren't any thunderstorms en route?)

Here are some points to ponder before your next cross-country.

- Weather briefs can be boring, but they are critical. Never take off with a void weather brief, no matter how reasonable your destination forecast may seem.

- Get your brief in person, if possible. If you must receive a phone brief, insist on more than the bare details of your destination and alternate weather. A quick overview of the synoptic situation may prevent a cold front from creeping up on you. Remember, you won't have access to frontal charts or satellite photos to see for yourself.

- Update your weather brief in flight, and do it early enough to avoid ending up in a situation where all your alternatives (and alternates) are bad ones.

- Common sense should apply to your selection of alternates. A legal alternate, in accordance with OPNAV 3710.7K, may not be a *smart* alternate, especially if the two are so close together as to be affected by the same frontal system. (How many of you have used Navy Jax when filing to Cecil Field?)

Remember, summer is coming, with corresponding severe thunderstorms and rapid weather changes. Don't be caught, as we nearly were, or you may end up with something worse than just some embedded memories.

"Do As I Say . . .!"

WHEN an XO makes a comment about safety during an AOM, it is usually motivated by the desire to keep safety fresh in everyone's mind and keep us on our toes. But what about the flights where the XO himself makes a mistake? Here's a case where no comment would have been made unless this anymouse had pricked up his furry ears!

The XO of this squadron and another experienced pilot took their aircraft on an instrument proficiency cross-country from one NAS to another. After an RON, the weather guessers painted the following picture: freezing level — 5,000 feet, cloud tops of a broken layer — 5,000 feet, cloud bases — 2,000 feet, icing forecast in the clouds, planned flight level — 6,000 feet, no clouds at flight level. (Should be no problem, just stay out of clouds on the way to the planned flight level, and the flight would be in the clear.)

During a 45-minute wait for the clearance, the broken cloud layer became overcast. Avoiding the clouds and forecast icing during climb was no longer possible. No matter, the XO and copilot decided to launch anyway. No ice was encountered in the climb, and the flight was soon at 6,000 feet in the clear. Later, with the cloud tops building, it was IMC at 6,000 feet. And what do you suppose began to happen? Right! The aircraft began picking up structural ice. An altitude change was requested but denied. Center was informed that the aircraft was picking up ice and an altitude change was imperative. Center advised that 6,000 feet was the *only* altitude available, due to traffic. Looks like the declaration of an emergency was in order, doesn't it? But not this time. The XO decided that the only way out was to descend — clearance or no clearance! Being most helpful, the copilot *secured Mode C*. They descended in IMC until



"X" pilot or EX-pilot?

in the clear, with Center none the wiser. The flight was switched to another frequency, and the new controller cleared the flight to a "new" altitude — the one that they were *already occupying*. The flight was uneventful from there to homebase.

All too often we have seen this type of activity encouraged in the name of completing hops (to fill a square with an "X"). Things like flying VFR in a WW or CAWW, ignoring SIGMETs (which are just CAWWs in disguise), flying through forecast icing (usually to fill in another square), and selectively ignoring those things which the command feels get in the way of the all-important X. We have also seen disciplinary action taken against those pilots who do the same thing away from home on a cross-country, just not in the name of that "X."

During my tour here, I have seen several COs come and go, and none has seemed to realize that "wrong is wrong," whether it's at home or on a cross-country. Either we don't get the "X" (and then have to explain why), or we prostitute ourselves and fly in conditions or forecasts when we know we shouldn't. In the latter case, we run the chance of disciplinary

action or perhaps buying the proverbial farm. Those who have been around longer know the score and how to avoid the pitfalls. It is most often the new guys that are taken in by what appears to be command policy.

As I've mentioned, the XO said nary a word about all of this, but his copilot shook his head and mumbled for quite some time.

A Can'twinmouse

Cranials Needed

AN H-53 with rotors engaged was being loaded with cargo while sitting on our flight deck. The flight deck crew started pulling out crossdeck pendants with three tow tractors. The tow tractor drivers were not wearing cranials, goggles, or flight deck vests. While pulling out the crossdeck pendants, they went directly under the rotor arc of the H-53 — with no protection whatsoever!

This happens quite often on our flight deck, and no one seems to do anything about it. Flight deck personnel appear to be too careless when working around helicopters.

Concernedmouse

This apparently is a problem on many flight decks. The misconception is that helos are not dangerous. Such an offhanded approach to personal safety is a direct reflection of how the air boss runs his flight deck.

Open House Flail

DURING an open house at an overseas air station, a static display of foreign and American aircraft was arranged. As expected, the local populace turned out in force to snap photos and take in the sights. The runway was closed by a NOTAM, and spectators were allowed to cross it when traveling from the display to the picnic grounds.

ANYMOUSE



All seemed festive and safe until 1530, when a crash truck began broadcasting (in English), "The static display is now secured." Simultaneously, tow tractors began to appear, starting units were attached to nonresident aircraft, and rotors, props, and jets began turning. This entire evolution took place with hundreds of people still surrounding the aircraft on the parking mat!

With fingers in their ears, the more sensible spectators headed back across the runway to the picnic grounds. They were stopped, however, at the very edge of the *now active* runway by the crash crew and MPs. They were allowed to remain and watch as aircraft on takeoff rolls rushed by *only a few feet away*. No one was hurt, but my imagination ran wild thinking about an aircraft developing a control malfunction, engine problem, or some other type of emergency and rolling through the crowd.

After all the hoopla of message traffic and articles concerning safety during spectator events, this unprofessional and incredibly dangerous incident was beyond belief. The hazard

could simply have been eliminated by holding the aircraft overnight at the air station — or at least until the open house had been cleared of all spectators.

Seeing is believing mouse

Short Flight Homeitis

A TA-7C from a nearby air station arrived to pick up a passenger for the trip home. Without shutting down, the pilot called for someone to get his passenger and then began his five finger checks. When the launch bar was dropped, the nose wheelwell was immediately drenched with hydraulic fluid. After the five finger cleanup, two troubleshooters were called to investigate. We saw the fluid on the deck, and I asked the pilot to drop his launch bar. He shook his head "no" and gave me a "thumbs up." I again gave him the signal to drop his launch bar. He gave me the same negative reply.

We noticed the port brake assembly was smoking. Further investigation showed that the starboard brake assembly was also smoking. Checking the PC-2 reservoir, only the top of the

piston showed. I climbed up on the aircraft and informed the pilot of the brake problems and the hydraulic leak. I told him if he would shut down, we would correct the problems. He shouted "No!" and stated that he had only a short flight home.

I know that when the launch bar is raised, the leak will be isolated. It is common for TA-7s to have hot brakes at this base. But I was wrong in letting you go, sir. If you crashed, who would bear the burden? You? Possibly, if you survived. If not, then it would be me, and **I don't need that!** I'm a maintenance man. I'm paid to do maintenance. If you will not let me do my job, then your job will no longer be there either, because there won't be any more aircraft to fly.

Frustrated maintenance mouse



REPORT AN INCIDENT PREVENT AN ACCIDENT

It happened to me!

By Capt David P. Robinson, USMC



"We began our water taxi for shore, which was 5 to 6 miles away."

IT was to be an early launch to escort a UH-1N from an LPH in the Mediterranean to Naples, Italy. We were just inside the coast of Sicily, at Siracusa, so two internal fuel tanks were put in our CH-46F to allow us to go nonstop. Mission planning and forecast winds indicated we could make it with a good fuel reserve. Preflight, turnup, and launch were normal. Because of the two internals, climbout was slow, with the airspeed steady at 70 knots.

Approximately one-half mile from the ship, at 150 feet and 70 knots, a loud bang resounded through our *Sea Knight*, and the No. 2 engine began to unwind. With the extra weight onboard, the turns started decaying immediately, and a water landing was our only available option. Because of a lack of altitude, the only thing we could do was engage the emergency throttle and hope to maintain a controllable rotor speed for water entry. The copilot started the APP and switched to UHF emergency antenna while we were riding the '46 down. The collective was lowered slightly at the onset of the engine failure, and water entry was made nose high, at 0 to 3 knots forward airspeed, with N_r down to 65 percent.

It took about 10 seconds after we were in the water to realize that the helo was going to float and we were going to be all right for a while. The turns had built back up to 100 percent, so we were in control of the situation. The emergency throttle was secured, and a relight of No. 2 was unsuccessful.

We decided to inflate the liferaft, and this was done, but it was not secured well enough to the aircraft and was last seen on an Italian fishing boat, headed for shore.

By this time, the *Huey* we'd been escorting was overhead, and the ship's UH-1 was airborne. They began looking for a suitable beach on which to bring our H-46 ashore. After they'd located what appeared to be a good area from the air, we began our water taxi for shore, which was 5 to 6 miles away. The trip was uneventful, and our crew chief was dumping fuel from the internals as we made our way.

Because the seas were calm, we made good progress through the water. It took approximately 45 minutes to reach the coastline, and by the time we got there, the good engine was beginning to show classic signs of salt buildup. The T5 was



over 700 degrees, and turns were down to 88-89 percent.

After our first good look at the "beach," we decided that we couldn't get the helo out of the water and that the best course of action would be to get the nose up on the rocks as far as possible. This we did. The helo began to vibrate badly, so we shut the good engine down and applied the rotor brake. As soon as the rotor began to slow down, the helo began to roll right. As the roll started, the copilot opened his emergency exit door and departed the aircraft, followed immediately by me. The crew chief and first mechanic had been the first two out, and they made it to the beach with no problems.

By the time I'd egressed, the helo had rolled 90 degrees (it had taken about 15 to 20 seconds for everyone to exit). The *Sea Knight* continued its roll to the inverted position.

After swimming to the rocks, we boarded the SAR helo and returned to the LPH. The LPAs had worked as advertised,

and there were no personal injuries.

Our helo was towed back to the LPH, and numerous unsuccessful attempts were made to crane it aboard. It was then towed to Siracusa and put on a pier.

The next evolution involved an attempt by a CH-53 to externally lift it to Sigonella, but it turned out to be too heavy and was pickled back into the water. It eventually got to Sigonella by truck and was used as a burn bird after being stripped for usable parts.

I'm telling you this story in order to again state that "it can happen to anyone." What looked like a very ordinary day's work rapidly turned into a survival situation. We took the right steps, our emergency and survival equipment worked well, and we all escaped unhurt. Our bird was not so lucky. Would I water taxi again if the situation called for it? *You bet I would.* Sea state permitting, it's the second best way to "fly"! ▶

Great landings vs. soft

By LT James J. Miller
VP-31 NATOPS Officer

TO the nonaviator, the landing evolution is magic. But to the flier, it can be the ultimate self-fulfilling experience when done properly. Most nonaviators tend to base a pilot's skill on his ability to make consistently smooth and seemingly greased touchdowns, but the actual touchdown is really only one part of the overall landing.

There exists a dangerous trend within the VP community to make all landings soft touchdowns at the expense of proper technique. The reasons behind this trend are many. The following scenario might help to identify some of the causes:

A newly-designated naval aviator completes FRS training and checks into his fleet squadron with a basic knowledge of landing procedures and a mental blueprint of proper touchdown technique. He knows his airplane should be landed nose high, in the first third of the runway, at the proper speed, on centerline. But after his first attempts to land with a crew onboard, he is rudely awakened. He makes what he believes is a proper landing, but the touchdown is slightly firm. After several crewmembers report to the flight station with first aid kits, helmets on backwards, and illuminated emergency exit lights, he realizes the priority is not on proper landings but on soft touchdowns. To avoid further ridicule, he begins to develop unsafe tendencies. *He finds that he can make consistently soft touchdowns by landing flat, at midfield, with power on.* This will at least keep the crewmembers happy. This unsafe technique is further reinforced by the instructor pilots within the squadron, who teach it as proper landing procedure and who judge a pilot's ability to land solely on the softness of his touchdowns. This will work adequately for a pilot 99 percent of the time. Then comes the day when he attempts to land on an 8,000-foot runway covered with 3 inches of snow, ice, or standing water. He uses the technique which has proven so reliable for him, and he makes a soft touchdown abeam the 4,000-feet-remaining marker, 10 knots fast, in a flat attitude, with power on. The airplane cannot be stopped on the remaining runway, and it departs the runway overrun with a crew onboard who believes the pilot just made a great landing because the touchdown was soft.

The landing process is not complete until the aircraft is brought to a complete stop, or slowed to a speed commensurate with normal taxi on a paved portion of the airfield.

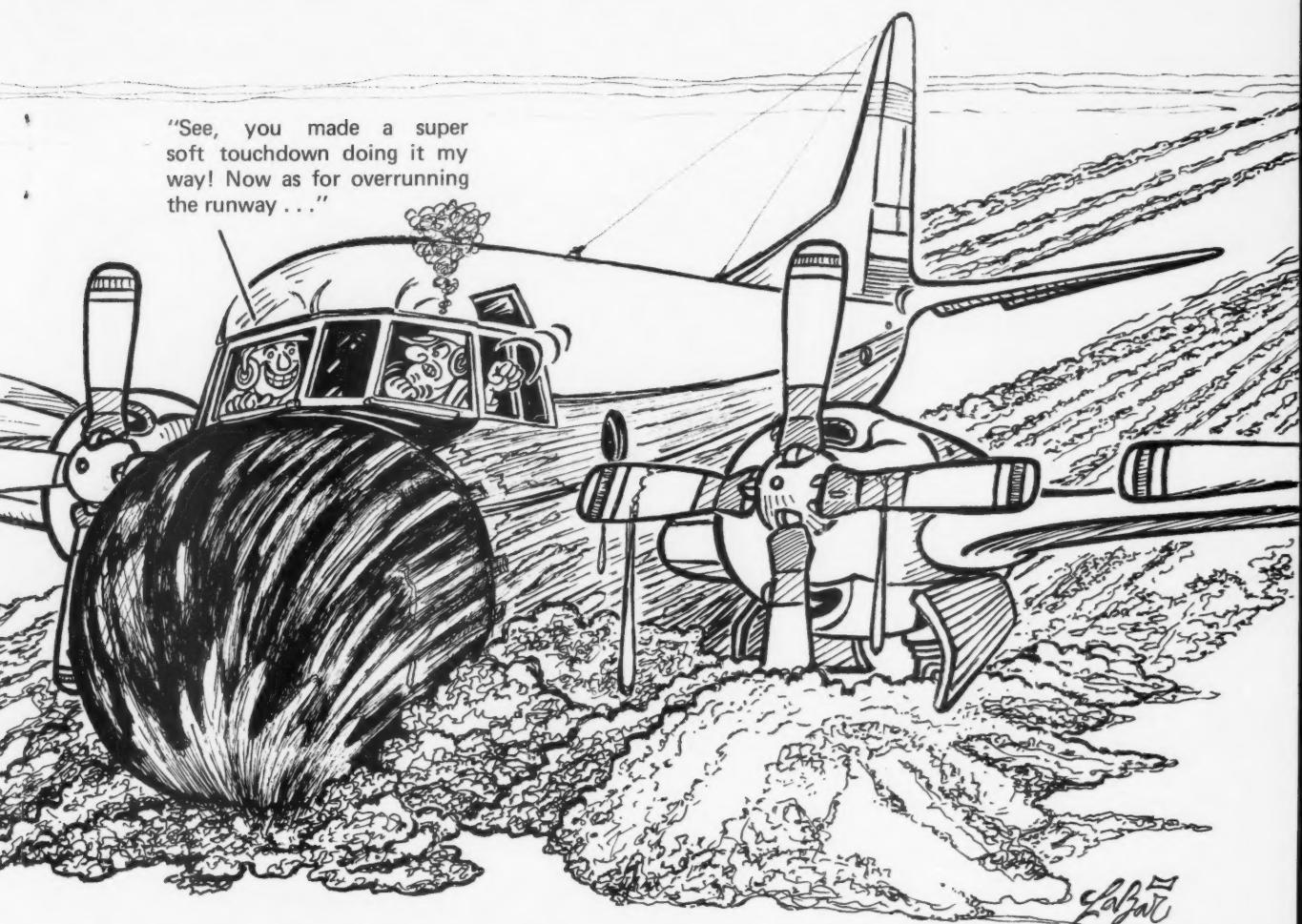
Let's evaluate a "great" landing. Perfect landings require fine timing, expert judgment of distance and altitude, and a feel for descent rate. The landing process starts on the downwind leg or upon alignment with the runway during an instrument approach. The pilot begins his deceleration and descent to a point at the beginning of the runway. Power control and aircraft attitude are critical. The goal should be a constant glidepath requiring only minor adjustments of power, allowing the pilot to concentrate on visual cues — a profile approach. A good glidepath is the first step toward a proper flare and a "great" landing.



Power control and awareness are essential elements to any landing. The pilot at the controls must be cognizant of the power on the aircraft at every point in the landing pattern. In order to accomplish this, pilots must develop a landing pattern scan which includes the power gauges. The pilot should strive to make small, incremental power reductions to predetermined settings, producing the desired deceleration rate toward the flare speed. If a pilot finds himself consistently adding power to make the runway, or goosing the throttles to break a high sink rate, then it would seem obvious that too much power is being reduced somewhere in the approach.

Centerline flying is absolutely essential. The centerline must be intercepted rolling final *and held*. Many potential "great" landings are ruined when the pilot deviates from centerline, then tries to angle in and edge over the centerline while

soft touchdowns in P-3s



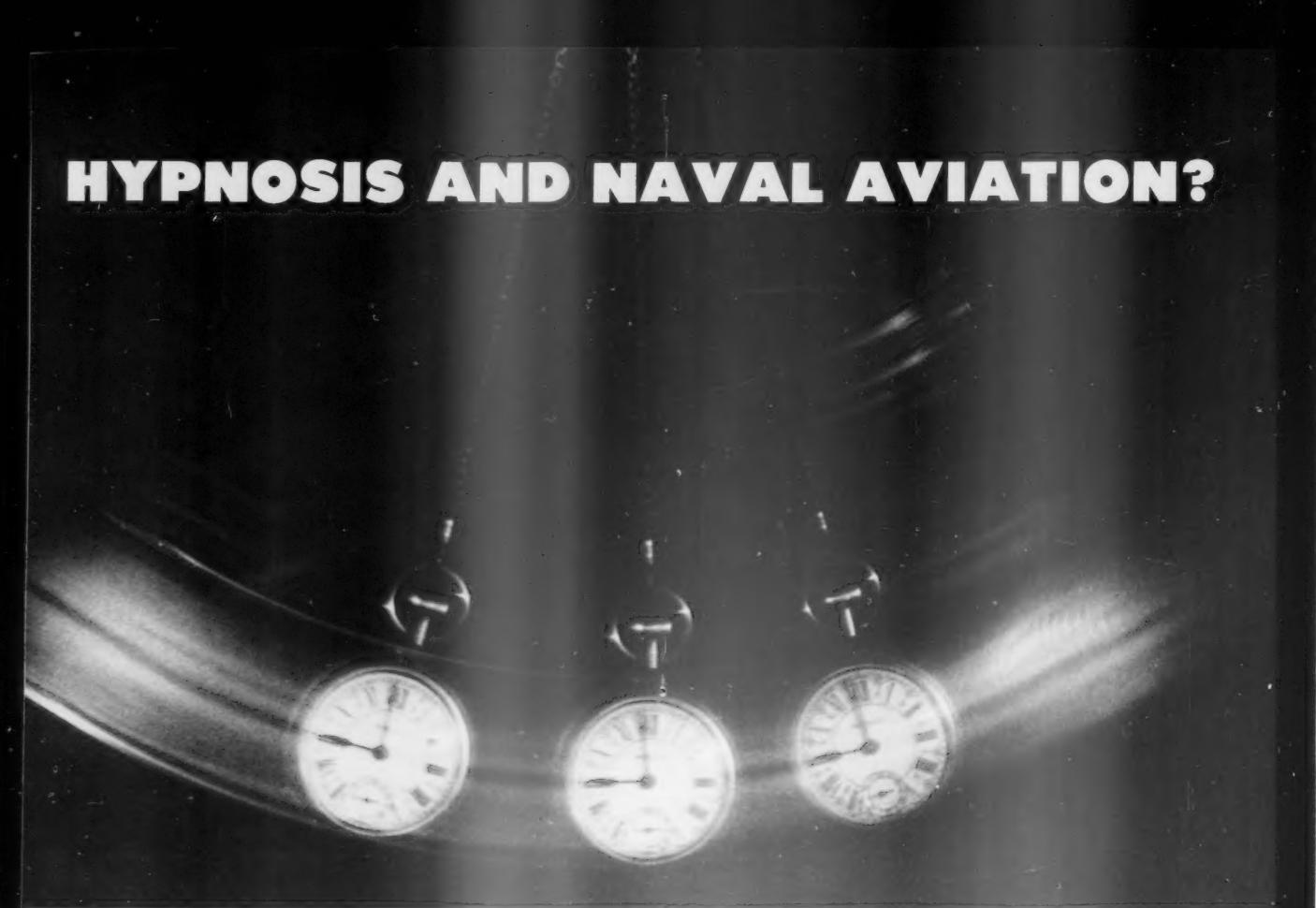
entering the flare. The usual result is a touchdown in a skid.

The flare is the most difficult aspect of the landing. As the flare is established, power should be reduced. Since he's close to the ground, if all a pilot does is reduce power, he and the surface will rapidly become one. Airspeed will slow as power is reduced. To arrest the resulting sink rate, the necessary action is to increase the angle of attack and create some new lift. As the ground "comes up," more back stick pressure is applied, and the aircraft touches down on the back of the mainmounts. Elevator control should be timed so that the plane touches down nose high by means of a smooth, continuous elevator motion. The proper completion of a "great" landing requires a simultaneous reduction of power and increase in elevator back pressure. The pilot must use peripheral vision for detecting vertical speed and flare attitude. The rate of power reduc-

tion and the amount of elevator back pressure is totally dependent on reference to the horizon *ahead* of the aircraft. Consistent flare technique comes only with air sense developed through concentration, attention to detail, and practice.

In addition to the ones already discussed, many factors contribute to the equation of a "great" landing. Standardization of instruction in the landing pattern within the VP community is necessary before every landing attempted can hope to be "great." It is a true confidence builder when a pilot can make a landing nose high, on centerline, in the first 1,000 feet of the runway, with zero thrust at touchdown. When he can combine a "great" landing with a soft touchdown, the multi-engine pilot will experience a feeling so good it's almost indecent. And do you know what the best part of it is? It'll be a *safe* landing, with proper profile technique. 

HYPNOSIS AND NAVAL AVIATION?



"Attention to detail! Attention to detail! Concentrate! Attention to detail! If you daydream once more, it had better be about what kind of car you want to drive, because you're sure as hell not going to be a naval aviator!"

Sound familiar? Remind you of your favorite flight instructor back at Whiting?

Well, you did what he told you. You concentrated, you paid attention to detail, and you concentrated some more. And it paid off. In your career as a naval aviator, concentration and attention to detail have saved you more than once.

A FLIGHT of two A-7Es had been working the range for 40 minutes. The lead change went as prebriefed, with two more runs scheduled before hop completion. The new wingman rolled in hot, followed by the lead, who was to make a dry run. As the first *Corsair* approached the target, the pilot pickled, pulled, and once he felt the climbout was progressing well, glanced over his shoulder to watch the lead. The lead appeared at the pullup point, but much to the wing's horror, the lead's *Corsair* continued its descent. An initial "Pull up!" call was followed immediately by an "Eject! Eject!" command.

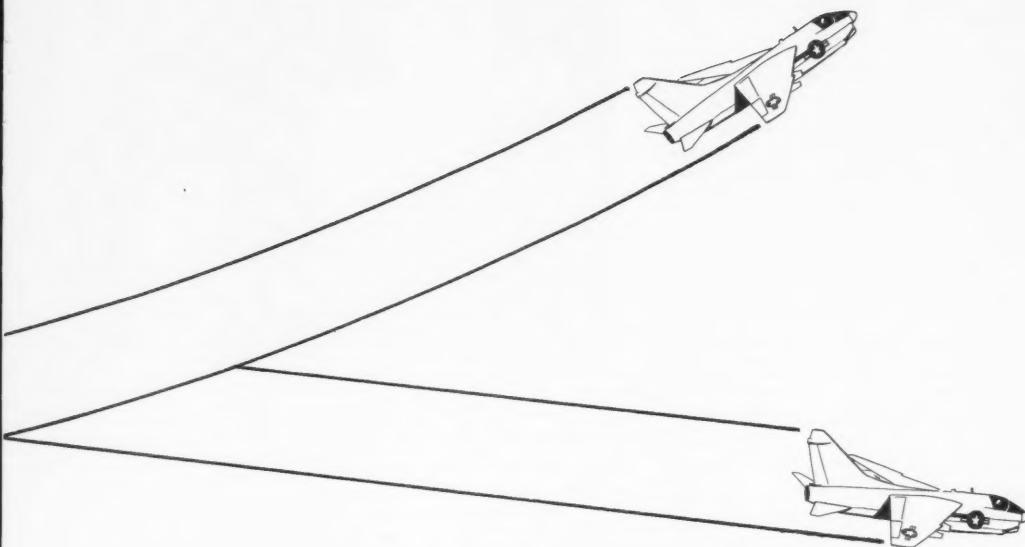
Both the wingman and observers on the ground later reported that the A-7 appeared in a normal dive until about 100-150 feet AGL, at which time the nose pitched violently up, followed by an uncontrolled roll to the right. The impact and resulting fireball burned a path in the desert 4,000 feet long.

The toll: one aircraft and one young naval aviator, who was

known for his concentration and attention to detail, no longer with us.

According to Dr. Anthony Joseph, Assistant Professor of Psychiatry at Virginia Commonwealth University, a state of "concentrated attention," by any other name, is hypnosis. No, you don't have to "watch the watch" to induce a hypnotic trance; you don't even have to feel your eyelids getting heavy. All that's required is an altered state of consciousness under "concentrated attention," whether it's becoming wrapped up in a detective novel in your living room (and not hearing the tea kettle shrieking in the background) or becoming *fascinated* (a 19th Century term for hypnosis) with your attitude gyro during a night GCA. And your controller doesn't even have to have a Viennese accent! In this condition, your mind is in a light hypnotic trance if you become so engrossed in your subject that your concentration narrows drastically. At that moment, your peripheral senses can, in fact, shut down.

By LT Rick Wall
and
LT Colin Sargent



19

The same good advice, "concentrate, concentrate, concentrate," that has, more than once, saved your posterior could end up biting you in the same place if you *overconcentrate*.

Nighttime in the Indian Ocean. An H-46 has just engaged rotors, and the crew is flipping through the takeoff checklist prior to launching for a scheduled VERTREP. The HAC lifts into a hover while the copilot monitors the beeps. A pedal turn to port is followed by a "go" from the copilot, and a smooth ITO into the black is begun. *Positive rate of climb, passing through 220-300 feet AGL . . . N_r . . . high N_r . . . 103-104 percent. High vibrations, too many turns, start to beep the engines down, gotta match those engines.*

"Watch your nose . . ."

WHAM. A shudder progresses through the airframe as the pilot pulls all the collective he's got. Shudders, caution lights, water splashes, vibrations . . . the big one! Miraculously, the helo lifts up and begins flying. Airspeed increases and the airframe buffeting smooths out. They fly back to the ship, where it's difficult to hover over the deck. The nosewheel is gone, both chin bubbles are cracked and broken, and a large gash down the underside of the fuselage is letting the helo's guts spill out in an alarming display of broken aluminum and wires.

The hover is growing harder to maintain. Large, one-per-rev kicks are growing in intensity. Both pilots are thrown off the controls. "Take it around!" They slide to the left and transition to forward flight, hoping to get the vibrations under control. Slight turn to the left . . .

The final impact was about 100 yards abeam the helo hangar, 10 degrees nose low and 30 degrees left "wing" down. The *Sea Knight* sank in less than 30 seconds.

The toll: one aircraft and three Navy fliers, who were known for their concentration and attention to detail, no longer with us.

"Every adult has experienced this phenomenon (mild hypnosis) hundreds of times," states Dr. Joseph in a VCU magazine study. "Yet these periods are not recognized as hypnotic trances by the individuals."

In the comfort of your living room, you can well afford to become thoroughly engrossed in a good detective novel. If your peripheral senses are shut down, what's the harm? Balance this against the demanding environment of the cockpit, or even driving down the road in your car. A degradation in the acuteness of your peripheral senses could well be something somebody will read about in tomorrow's newspaper.

The way in which your concentration gets intensified doesn't matter. It could result from an "uneventful" night training hop droning around a carrier's starboard delta pattern or a short final during IMC, where every fiber of your being is tuned to your attitude gyro.

The important point is that when the conditions are right, your concentration can intensify on a particular subject to the detriment of all else. This is *not* a quality of only those who don't have the "right stuff," but rather an integral part of human psychological makeup that the psychiatric field still does not fully understand.

Continued

What *is* understood, however, are the types of conditions which tend to promote this level of concentration. When we asked him how hypnosis occurs in a cockpit environment, Dr. Joseph put it this way. "(Inadvertent hypnosis) can occur while flying, *especially* when visual stimulation is reduced." (That is, especially at those times when we need all our peripheral senses the most.)

Lack of visual stimulation can be found in IMC, night flying, or while boresighting inside the cockpit on a bright summer day.

In addition to lack of visual stimulation, other factors include fatigue (not limited to lack of sleep, but also to continually performing the same function, as instrument scanning in the same pattern), excitement (becoming very intent on a fluctuating oil pressure gauge), and repeated routine (the old starboard delta number), where you develop a lulling, "kinetic memory."

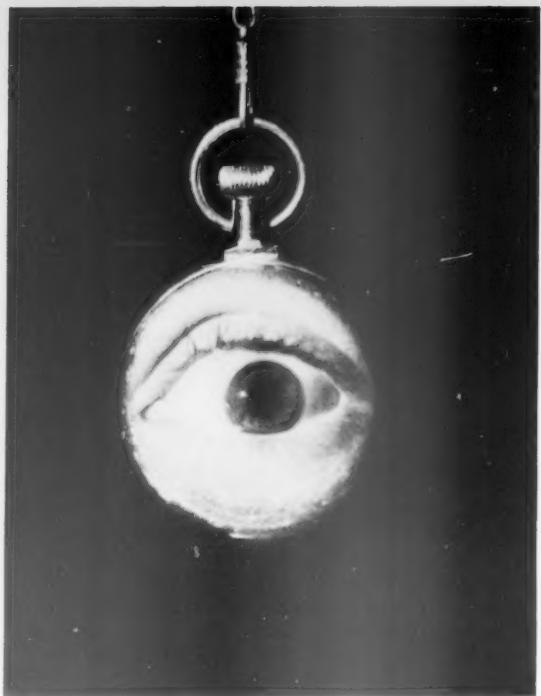
The obvious cure, then, is to avoid these conditions. Don't fly IMC or in the dark. Don't fly an aircraft that can break. Don't shoot GCAs or fly holding patterns while listening to the hypnotically calm voice of a controller. In other words, don't do anything a naval aviator is trained to do.

Well, we're all here to fly, so let's keep another, less drastic, approach to the problem in mind:

"If you are willing to be hypnotized, chances are you could be."

That is, if you are not consciously fighting the onset, chances are it will be on you before you know it.

Have you ever driven down a highway at night with just one destination in mind, and seen the dark trees encroaching on both sides of the road, and you start to get tired, and the white line seems to be coming toward you instead of the other way around? Have you then made two left turns, gulped down one and a half swigs of coffee, changed lanes nine times, and taken an off ramp to another highway *without being totally aware you were doing it?* Have you then, 20 minutes later, "awakened," wondering how you ever drove the last 17 miles without remembering them?



Have you ever been flying on an airway at night, with just one destination in mind, switched radio frequencies three times, assumed two new courses . . . ?

When you've been keeping that instrument scan up all night, try to remember that the purpose is to *interpret* the readings on the gauges, not just scan them blankly. If something out of the ordinary catches your eye, look at it and then *force* yourself to look elsewhere.

Next time you hear about a mishap and run into words like "daydreaming," "fixation," "boresighting," "drifting," "inattentiveness," or that old favorite, "complacency," consider this. A person involved in such "daydreaming" may in fact have been concentrating very hard — on the wrong thing.



“Paddles contact. 401, you’re high. Start it down...”

By LCDR D. M. Gillespie
LSO School, NAS Cecil Field

WHAT does that mean to you as a pilot? Are you happy to have that golden-voiced saint come to your aid on a dark, scary night, or are you frustrated because that mouthy so and so won’t shut up and let you fly your airplane? There are probably as many different viewpoints on this and other LSO-related topics as there are pilots in the Navy (not to mention the Marines!).

As an example, ask your squadron LSO to take an informal poll of pilots on how they interpret the call “Check your lineup.” I think you’ll find some interesting responses and a wider range of answers than you anticipate. In a recent class at the LSO School, we found five different ideas among 14 LSOs.

Now that you have the results of the poll, did the answers surprise you? If not, then your air wing is to be congratulated, because your training program is doing a good job of standardizing pilot and LSO communications. If they did surprise you, how do you ensure that your pilots and LSOs are not only communicating with each other but really *understanding* the transmissions?

The first step is for all LSOs in the air wing to clean up their act and make sure they agree upon what they will or will not say on the radios – and what specific pilot response is desired. LSO NATOPS gives us guidelines for what we should be saying, along with the expected pilot response. An extremely high percentage of waving situations can be controlled by using *only* these exact calls. Nonstandard calls are occasionally appropriate when pitching decks and low visibility create nonstandard conditions, but for the most part, the more we use only standard calls, the more the pilots will be able to understand exactly what we are saying and respond accordingly. In a recent personal message, CNO pointed out that “there are only a few standard radio calls authorized by NATOPS, and those calls have been carefully selected to avoid any possibility of misinterpretation by our pilots.” Using standard calls is the first and most important step in maintaining LSO standardization and credibility.

According to sea stories heard here at the LSO School, out there somewhere lives an LSO who uses the call “Check your lineup” to mean “Left for lineup.” Unfortunately, he is confusing himself and all the pilots he debriefs. This kind of discrepancy within the LSO house needs to be cleaned up before we can ask the pilots to do what we say.

The second step is to increase the amount of communication between pilots and LSOs. We are all force-fed on NA-

TOPS Manuals, from aircraft to CV to LSO, but just reading the book will not automatically create understanding. It takes initiative on the part of squadron LSOs to begin discussions about LSO topics in situations other than LSO debriefs. LSO calls are important subjects for informal conversation among pilots and designated aircrew as well as for formal ground training sessions. NFOs are notoriously interested in “our” pass and will be extremely helpful in stimulating discussion at these sessions. Pilots should understand that fleet waving techniques vary greatly from those used in RAG or training command CQ. LSOs need to know how the pilots are interpreting their calls. An open and thorough discussion of each call will enable everyone to better understand what is expected in the carrier landing environment.

All of this brings me to the topic of “buffalo calls.” Not everyone knows what they are, but every air wing has them. A “buffalo call” is used by an LSO to let the pilot know that he is over steel and can now make a *nonvarsity play for the deck*. The pilot is expected to do what is necessary (a little *drop nose* or *ease gun* or *DLC*) to get aboard without breaking his airplane. It is an unwritten way to increase boarding rate by preventing a bolter here or there. Each air wing uses different wording, from “Fly the ball” to “Don’t go high” to “Hold what you’ve got.” “Buffalo calls” are not described in LSO NATOPS, nor will you find an individual LSO who will admit to using them, but it behooves you as a pilot to know what they are in your specific air wing. A dangerous situation could be created by an LSO using a call such as “Fly the ball” somewhere in the middle, simply to let the pilot know that the deck is steady and the information he sees on the lens is good, while the pilot is thinking it means “*You can do your getaboard maneuver now.*” CAG LSOs especially need to know what calls are being used in order to eliminate “buffalo calls” within the air wing. That way, they can ensure that the pilots understand what responses are expected.

Hopefully, this little article will stimulate one or two LSOs to talk to one or two pilots about the meaning of LSO calls. What does “Check your lineup” mean? “Go manual?” “Don’t settle”? The more we understand each other, the more we communicate, and the safer the carrier landing will be for all concerned. And that’s the ultimate goal, right?

If you have any specific questions, our address is now U. S. Navy LSO School, Box 171, NAS Cecil Field, Florida 32215. Just send them along; they should at least give us all a good laugh. We realize that our opinions and collective waving techniques at the LSO School do not necessarily reflect the opinions and ideas of every LSO in the fleet and training command. (LSOs tend to be a hardheaded lot.) But we do hope to raise a few hackles and create enough dissension out there so that LSO calls are discussed in your readyrooms. We also hope that the feedback loop will be closed by all you squadron LSOs and pilots who feel your beliefs on a particular topic should be heard. (Yes, we do accept inputs in felt-tip pen on bar napkins, if they aren’t too smeared with vodka and tomato juice!) 



Clockwise from left to right, LTJG Tim Hewitt, AMS3 John Markuszewski, AMH3 Tracy Eberheart, and LT Dave Allen.

LT Dave Allen
LTJG Tim Hewitt
AMH3 Tracy Eberheart
AMS3 John Markuszewski
HC-6 Det 6

A CH-46D crew from HC-6 Det 6, deployed aboard USS SEATTLE (AOE 3), was conducting hoist operations over the VERTREP area of USS DAVIS (DD 937) when they noticed decreasing rotor RPM. LT Dave Allen directed his crewmen, AMH3 Tracy Eberheart and AMS3 John Markuszewski, to get the man on the hoist aboard the helo while he transitioned to forward flight and single-engine airspeed. Meanwhile, his copilot, LTJG Tim Hewitt, diagnosed the problem as a power loss from the No. 2 engine, advised the HAC that he was arming the emergency throttle, started the APP, and switched the transponder to EMERGENCY.

The crewmen quickly retrieved the man on the hoist, who had been midway between the ship and the aircraft. AMS3 Markuszewski pushed the passenger to the deck of the helo and threw himself on top to protect the passenger from injury in the event of water impact. LT Allen stabilized the aircraft at 70 knots and then directed his attention to the gauges. He quickly analyzed a No. 2 engine malfunction to minimum beep. After resetting the emergency throttles and advising SEATTLE of his problem, he recovered aboard without further incident.

A power loss over the deck with a man in the sling is one of the most dreaded emergencies in the helo community, because so little time is available to do so many things. The flawless execution and coordination shown by the crew enabled the aircraft to remain airborne without injuring the man in the sling. The ability to respond to the "big one" in this manner is the result of taking care of the "little things" — the endless briefs, debriefs, drills, and discussions. In this case, the investment paid off handsomely.

BRAVO ZULU

LT Roger Fleischer
LT Mike Bradberry
VAW-123

IMMEDIATELY after a night waist catapult shot, LT Mike Bradberry (pilot at the controls) and LT Roger Fleischer (pilot in command) experienced a severe jolt and a loud bang from the starboard side of their E-2C *Hawkeye*. All external lights went out, and the E-2 began to settle approximately 20 feet off the catapult. The gear was quickly raised, but the flaps stuck at two-thirds down. To keep the wings level, it was necessary to apply full left wing down trim, full right rudder trim, and an aileron input equal to 20 degrees left wing down.

After recovering from some initial vertigo, the crew calmly righted the E-2 and proceeded overhead the USS AMERICA to evaluate the situation. They were informed that their starboard wing had sliced through the vertical stabilizer of a KA-6 tanker that had its tail parked over the shot line.

Because the incident occurred in the Indian Ocean, with no divert field available, the E-2 remained overhead until dawn — an hour away. At first light, an airborne inspection of the E-2 revealed that 4 feet of the leading edge and 6 feet of the trailing edge of the wing had been sheared off. Additionally, the starboard aileron was immobile, and the outboard aileron screw jack and approximately 3½ feet of the starboard aileron were missing. To further complicate matters, it was discovered during slow flight testing in the approach configuration that an angle of bank greater than 15 degrees to the right created a buffet.

Shortly after daybreak, LT Bradberry flew a flawless straight-in approach to an arrestment on a severely pitching deck. Both LT Bradberry and LT Fleischer are to be commended for their cool reactions and professional airmanship in getting the E-2C both airborne and safely back aboard.

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Left to right,
LT Roger Fleischer
and LT Mike Bradberry.



FLAT SPIN in an F-4J

By Richard A. Eldridge
APPROACH Writer

BLUE, yellow, blue, everything was spinning. The RIO saw the sun crossing from right to left at 3-second intervals as the *Phantom* fell from 18,000 feet. He called out airspeed and altitude during the descent and reminded the pilot to "Check your controls" on three separate occasions.

Passing 16,000 feet, the pilot was forced forward by increased centrifugal force. His mask separated from his left helmet attachment fitting and hung suspended in front of him. *What was going on? Could this really be happening?* An upright flat spin in an F-4J from which there is no known recovery!

The mission had begun as a two-plane ACM hop. During start, however, the wingman's aircraft developed a hydraulic leak and was downed. This altered the lead aircrew's plans, and they briefed on the flight line for a single-plane mission. They decided to fly out to the operating area and perform maneuvers to familiarize themselves with aircraft performance.

Once at 6,000 feet, a series of 360-degree level turns was performed, both in military power and afterburner (AB). After four turns, a climb was made to 10,000 feet, where aileron and barrel rolls were conducted. After the wing fuel was transferred, another climb was made, to 15,000 feet. The crew discussed the tactical maneuvers which were to follow, highlighting the differences between them.

The pilot accelerated to 450 knots, commenced a 3G pullup to a 60-degree noseup attitude, and allowed the airspeed to bleed off to 180 knots. Forward stick was applied to control the AOA during recovery to approximately a 25-degree noseup attitude. Full afterburner was then selected to demonstrate that altitude loss could be arrested with the F-4 at 24 units AOA at an airspeed of 145-150 knots. As the AOA was increased to 26 units, mild wing rock occurred. The nose was lowered, and the F-4 accelerated out of the low speed regime.

During the second maneuver, starting from 16,000 feet at

300 knots, the F-4 was put into a 3G pullup to a 90-degree noseup attitude at full military power. While decelerating to 180 knots, with the stick in neutral, the pilot selected half flaps. When the F-4 started to pitch forward, he pulled up the flaps and applied forward stick. The aircraft stabilized at 25 degrees nose up, 145 knots airspeed, in full afterburner. No more altitude was lost.

The third maneuver was started at 17,000 feet at 320 knots. The pilot first intended to execute this maneuver by pulling the nose through the vertical, passing through the horizon inverted, recovering in a nose low attitude. He changed his mind, however, and decided to do another maneuver identical to the second one.

While executing this one, the RIO noticed that the nose had been positioned approximately 10 degrees past the vertical, in comparison to the straight-up attitude of the previous maneuver. As the aircraft slowed to 200 knots, half flaps were selected. The pilot did not sense the nose pitch forward as he expected, so he applied full forward stick. The nose moved forward to a 70-80° nose high attitude, and airspeed slowed below 180 knots as the flaps were raised. With the airspeed rapidly decreasing and the nose not responding to full forward stick, the pilot told the RIO the airspeed would fall to zero. He retarded the throttle from AB to IDLE. Altitude was 26,000 feet, airspeed registered zero, and the AOA went to 30 units as the nose of the aircraft started to fall forward through the horizon. The AOA broke, went to 18 units, and remained below rudder shaker. When the nose fell through the horizon, the pilot pulled the drag chute handle. He reported, "Chute's out, stick's forward." He had both hands on the stick, keeping it full forward and centered. The F-4 continued nose down, 20 degrees past the vertical. Airspeed built to 80 knots and stabilized at 120 knots. The nose of the aircraft then pitched up to an angle 15 degrees below the horizon, and the airspeed increased to 140 knots. During the nose pitchup, the AOA registered 18 units, but the pilot felt the aircraft was not responding to his flight control inputs. Despite this, he believed that the aircraft would recover without difficulty.

At a steady nose position 15 degrees below the horizon, the AOA went to 27-30 units, airspeed 140-145 knots, and the F-4 started a gentle yaw to starboard. This continued through 360 degrees. The pilot rechecked power at IDLE, chute handle pulled, and stick full forward. *The AOA showed 27 units with the turn needle full right.* The pilot placed the stick full right to comply with antispin control procedures. They were at 18,000 feet with the aircraft spinning right and the yaw increasing rapidly with each turn. The pilot interpreted this as the prerecovery phase of the spin because of similarities he had experienced in T-2 departure/spin training. The nose did not oscillate with the yaw in the spin but remained at 10 to 20 degrees nose down throughout the entire evolution. As they passed 15,000 feet, the RIO checked his harness and pushed himself back in his seat. The pilot was no longer able to maintain a seated position. He removed his left hand from the stick and attempted to reposition himself by pushing back on the radar scope. He couldn't raise his head, and only the lower part of the instrument panel was visible. Because his mask had been detached, he felt he had lost communication with the RIO.

At 12,000 feet, the pilot felt he couldn't stand much more of the longitudinal G and still function. He yelled "Eject!"

"Eject!" removed his right hand from the stick, and pushed away from the radar scope with both hands. His position as he ejected (using the lower handle) was head bent forward and lower back away from the seat. He ejected at 11,500 feet. As the rear canopy began to separate, the RIO also ejected using the lower handle. During his ejection, he felt contact with some object on his helmet and right thigh. His position after ejection was directly above the pilot. He noted that both ejection seats were tumbling and the F-4 was spinning to the right. The RIO saw the aircraft impact the water in a flat attitude. Neither he nor the pilot noted the drag chute on the F-4 after ejecting.

After hitting the water and inflating his lifevest, the RIO gave a "Mayday" call with his PRC-90 on Guard and SAR common frequencies. Both crewmen had no trouble remaining clear of their chutes, and they experienced no problem in boarding their rafts. The pilot raised the lower portion of his seat pan and secured the emergency radio. The RIO's radio did not activate because of a mechanical malfunction.

When they heard an aircraft nearby, they used a dye marker, flares, and mirrors. SAR operations were excellent, and after a swimmer was put in the water, both crewmen were rescued by the helicopter.

Pilot's Use of Flaps. The pilot's use of flaps to control nose pitch came about through contact with fighter pilots from other nations, talks with a previous squadron section leader, tactical fighter briefs at a major fleet operational exercise, and time in the F-4J flight simulator. He had performed this flap maneuver successfully at least a dozen times previously. The efficiency of half-flaps (during ACM) is questionable, and in some F-4 fleet squadrons, it is not permitted. In any event, the use of flaps during such maneuvers, with a low level of recent proficiency, was poor judgment on the part of the mishap aircrew.

Locked Harness. Because the pilot's harness was not locked, he couldn't function effectively during the latter stages of the spin. He felt nearly incapacitated in terms of vision and mobility. This, together with his belief that ICS communication with the RIO had been lost, motivated him to prepare for ejection.

Drag Chute. Nondeployment or possible loss of the drag chute may have been a factor in this mishap. Although the RIO did not see the drag chute deploy after the pilot called it, he heard and felt what he assumed to be drag chute door actuation and chute deployment.

Full Forward Stick. The old axiom "unload for control" is not applicable to every departure/stall recovery in the F-4. In fact, maintaining full forward stick throughout this recovery when the AOA was at 18 units was improper, especially when the nose pitched down past the vertical. Flight controls should have been neutralized and the aircraft allowed to accelerate out of the stall. Accelerating through 250 knots, the AOA can be smoothly increased to 19 units AOA (25 units AOA in the F-4S) to complete the dive recovery.

Summary. Six F-4 out-of-control CLASS A mishaps have occurred within the last 22 months. Improper pilot recovery technique was a factor in five of these six mishaps. This trend suggests that a review of F-4 out-of-control/unusual attitude recovery techniques is warranted throughout the F-4/RF-4 community.

A night in the day of an SNA

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By Russ Forbush
APPROACH Writer

The hazard described below in first-person narrative is a hypothetical example of what could happen to any pilot, but especially an inexperienced one, once his thought processes become muddled and he begins to act in a confused, aimless manner. That this pilot's actions (or lack of) resulted in a hazard rather than a serious mishap was, for the most part, pure luck.

I'D THOUGHT about it all day, and now takeoff time for my first night FCLP was fast approaching. About an hour prior to "Charlie" time, I ambled on down to maintenance control and eyeballed the aircraft discrepancy book (ADB) for the TA-4J I was scheduled to fly. There was a gripe concerning faulty activation of the wheels warning light on deck with the wheels and flaps down. No sweat, it was written off as repaired and checked satisfactory on ground power.

After signing the yellow sheet, I walked out to the aircraft and conducted my preflight inspection. I then climbed into the cockpit, strapped in, went over the start checklist, started up, and completed a poststart checklist. Final check

and taxi to the duty runway were normal in all respects. When I approached the hold-short area, there were two other TA-4Js ahead of me, and they were starting to take the duty runway for takeoff. I still had about 15 minutes to go before my scheduled "Charlie," but when I saw the two other A-4s accelerating for takeoff, I thought I was getting behind schedule, so I began to hurry my takeoff procedures. Following my request, the tower cleared me for takeoff, on normal tower frequency, for direct entry into the FCLP pattern. At this point, I began to get screwed up. Forgetting I was to enter the FCLP pattern, I made a normal night instrument takeoff. At 200 feet and a positive rate of climb, I followed my normal habit pattern and raised my gear.

After passing through 300 feet, I transitioned outside the cockpit, and suddenly, it dawned on me that I was supposed to enter the FCLP pattern. I looked for an interval and then lowered my flaps from the one-half down (takeoff) position to full down. The tower gave me an interval on a T-2, and I commenced a left turn when the T-2 was at 9 o'clock, which was just a little too close. The 500-foot scattered cloud layer was making it tough for me to maintain visual contact with the T-2 and keep an eye on the runway environment. I looked back in the cockpit and noted that the wheels warning light was flashing, but I assumed that this was just a repeat of the gripe I'd seen on the pink sheet. I didn't check the gear or flap positions, but I did make a mental note to make my first pass a low approach so the LSO could check my gear.

On the downwind leg, the tower told me to switch to paddles frequency. When I arrived at the 180, the LSOs were on station conducting radio checks with the tower. I called abeam with qual number, gear, and flaps information, hastily completed my landing checks, and then turned for my base leg. I quickly looked at the gear indications and thought I saw what I expected to see — three down. Paddles asked if I had performed an AOA check, and I answered in the affirmative, but I only correlated fuel weight, airspeed, and the AOA gauge — I don't remember checking the indexers. Upon reaching the 90-degree position, the LSO asked what aircraft it was, and I responded with my call sign. The LSO then came back with, "Call the ball at the 45-degree position." Now, I became totally engrossed with making the prescribed voice call and flying the ball. I had forgotten my previous plan for a low approach gear check by the LSO, disregarded the wheels warning light, and never noticed the absence of indexer lights.

I was now under positive control of the LSO and called the ball. Another A-4 on a short interval behind me also called the ball. At this point, the LSO's attention was focused on two aircraft, and he didn't notice that my aircraft was minus an approach light. I continued my approach to touchdown, added full power, put the speedbrakes in, rotated, and became airborne again. Somehow, the landing didn't feel just right, so I called the LSO and told him this (brilliant, huh?). I still hadn't realized I'd made a wheels-up landing. By this time, the LSO smelled JP fuel and noticed a portion of a droptank lying on the runway. The LSO called me twice to check my gear, and each time, I told him they were down and locked. Finally, my brain unlocked, and I physically checked the gear handle and the indicators — as you know, they showed my gear was up. Somewhat sheepishly, I lowered the gear, and thankfully, the indications were safe. I then lowered the hook and brought my aircraft in for an uneventful arrested



landing.

Sure, I was a little apprehensive about my first night FCLP, but this was no excuse for the number of headwork demerits I earned on this flight. Let's take a brief look at them:

I unnecessarily rushed my pretakeoff procedures in order to make my "Charlie" time.

I raised my gear after takeoff even though I was to remain in the landing pattern, then I lowered my flaps. This broke my habit pattern.

I erroneously assumed the flashing wheels warning light was a repeat of a previous gripe and never checked the situation out.

I failed to perform a proper landing checklist.

I failed to notify the controlling LSO of my problem with the warning light and perform a low pass for a positive gear check.

I got glued to the meatball and failed to crosscheck my airspeed and AOA indexer lights.

I know, I know, the LSO should have bailed me out by noting that I had no approach lights. Still, even without his help, I made enough mistakes to earn undisputed possession of the "Birdbrain of the Year" award. There was help available to me, but I didn't make my problems known. This flight taught me one thing — two heads are better than one, especially when one is working intermittently.

As you can imagine, my skipper had a few choice words to air about my antics on this particular flight. Read them carefully — the message is loud and clear for all of us who earn a living as naval aviators:

"So long as we have aircraft whose wheels retract or wings fold, someone will find a way to land gear up or attempt to fly with wings folded. Since the beginning of aviation, we have come up with systems, indicators, lights, and NATOPS procedures to prevent such things from happening. As fail-safe as we attempt to get, someone figures out how to beat the system. I wish I could offer an intelligent observation in mitigation or an idea to prevent this type of incident from ever happening again, but I can't. I only hope that the story of this occurrence is widely spread throughout naval aviation so that others may take immediate heed. The only reason an aircraft was not lost or a valuable pilot was not killed is that this student naval aviator's number was not up on this particular night."

Just one final thought before wrapping up my story on how not to conduct a flight. I learned a lot from this misadventure without destroying an aircraft or getting myself banged up or, worse, killed. In the future, I will make every effort to remember what happened that night and vow to follow prescribed operating procedures at all times. If just one of you does the same, my tale will have served a useful purpose. 



QUESTIONABLE DECISIONS

By R. A. "Chick" Eldridge
APPROACH Writer

Note: This article is written in first-person narrative form in order to better illustrate the sequence of events. — Ed.

JUST as we neared the touchdown point, I tried to guess the moment the gear would hit the runway. This was based on my experience as an NFO in A-6s, but now I was an RSO (rear seat occupant) in a TA-7. As we passed the point where I thought we should be touching down, I became extremely alarmed. We hit really hard, and since I felt we'd landed on the fuselage, probably wheels up, I made my decision to eject. My total experience in the TA-7 was limited to five landings, which

were cross-country "grease-em-ons," but this one was a very steep, fast approach and contributed to my decision to eject.

After pulling the lower ejection handle, I smacked into the ground and felt myself sliding through the bushes so quickly that I thought I hadn't been fast enough and that the beating I was taking was from the aircraft breaking up around me. When I stopped sliding and released my chute and seat pan, I stood up and looked for what I expected to be a big fireball. Instead, all I saw was a large cloud of dust at the end of the runway.

As I ran toward the TA-7, I could see that it had departed the runway and was extensively damaged. On the way, I had some time to reflect that I was probably lucky to be alive and that this mishap was the result of several severe errors in judgment on the part of the pilot and myself. I started to think back on how we'd managed to maneuver ourselves into such an *extremis* situation. Here's how it happened.

Our first leg was a routine flight to NAS South, where we RONed. The next morning we were scheduled to give a brief to a Training Wing audience. Looking back over the events as they happened, I now wonder whether my pilot's unscheduled local flight at NAS South before the lecture, with an unauthorized passenger, was a portent of things to come. Although I told my pilot that I thought he was wrong in taking up an unauthorized passenger on a flight that was not on our planned cross-country request form, he did it anyway. Fortunately, it was an uneventful local flight, and everyone was all smiles.

After the lecture, we departed for NAS East Coast. We made two stops en route, one for fuel and the second to drop me off for the weekend. After dropping me off, the pilot took off for NAS East Coast, where he was to spend the weekend. Our plan was for him to pick me up Sunday morning and return to home base.

Sunday morning, he picked me up right on schedule. He didn't even bother to shut down, as it was a 15-minute passenger stop. He mentioned that his flight had been a piece of cake except for an intermittent IFF. At the pilot's request, I checked the IFF and circuit breakers and found nothing wrong. Figuring that the IFF wouldn't amount to much of a problem, we took off. My pilot had filed a multileg IFR flight plan to home base with three planned en route stops, the first one to pick me up.

Once airborne on the second leg, we were advised by Center that our IFF was inoperative. Despite this, we continued flying and were given IFR handling but weren't allowed into APC until well south of our departure point. Otherwise, we were on "Easy Street" (until after landing and taxiing to the chocks, when the generator dropped off the line). We could reset it, but it would drop off the line again.

While the aircraft was being refueled, we filed IFR for Southwest AFB. I had called their command post and was informed that their long runway was closed, but the short one (8,000 feet) was open with a 10-knot crosswind component. Upon engine start, the generator initially failed to come on the line, but several reset attempts brought it back to life. Prior to taxiing, however, it failed again. The pilot shut down the aircraft. (This was one of the few right decisions we made.) Right after this decision, however, we made our first big mistake. We didn't think we had a chance of getting the generator fixed at this field (AAF), especially on Sunday. In retrospect, I now know that our only course of action should have been to *stay put and get the generator fixed*. But hindsight is always great, and we didn't get it fixed. Instead, the pilot met an A-4 pilot (who'd flown A-7s at one time) and explained our problem with the generator. He asked the *Scooter* pilot if we could take off on his wing in order to get airborne, figuring that we could use the EPP after we were safely aloft. The A-4 pilot agreed and even offered to lead us to one of two naval air stations where the generator could be repaired or replaced. My pilot thanked him for the offer, but declined and opted to continue on our way to NAS Homebase.

After we started up, our generator problem persisted while taxiing to the hold short area, where it failed and would not reset. Nevertheless, we took off on the A-4's wing and, once airborne, regained electrical power by deploying the EPP. On climbout, the generator was successfully reset.

The following conversation took place with Departure Control:

Departure: OK, Navy 123, I understand you're going east and your wingman is going west. Is that correct?

Navy 123: 123, he should be on the air now.

Departure: OK Navy 456, how do you hear?

Navy 456: Center, this is 456.

Departure: Yeah, if you're with us, squawk 2337.

Departure: Navy 456, climb and maintain one five thousand on that heading. Join the 070 radial, and resume your own navigation.

(*Overlapping transmission from Navy 456:* ... flight following, will be climbing up to sixteen five.)

Departure: OK, I don't think I got all that, Navy 456. Are you going to go VFR or IFR?

Navy 456: 456 is splitting off and leaving. We'll be departing VFR to the west.

Departure: All right, radar service terminated. Frequency change approved, over.

Following this exchange, we continued on our way but did not activate our IFR flight plan to Southwest AFB. In fact, we changed our plans and flew VFR to Midwest AFB vice Southwest – *without a flight plan*. On this leg, the pilot asked me to file an IFR flight plan with an FSS for our final leg from Midwest AFB to NAS Homebase. By this time, we'd gotten used to the generator falling off the line, as it was doing now. It immediately reset. We had no further generator problems on the leg to Midwest. We landed and shut down to refuel.

During our ground time, we met an F-4 crew and explained our generator problem, once more requesting assistance in getting airborne. Even though I was sure that the malfunctioning generator was an automatic downing discrepancy according to NATOPS, I was influenced into believing that we could continue to our destination without undue difficulty because of my pilot's confidence in his ability to handle any situation. Since I was very inexperienced in the TA-7, I acquiesced to his decision to continue.

The F-4 pilot included us on his flight plan. After we started the engine, the generator would not stay on the line, so the poststart checks had to be completed on external power. When the F-4 was ready to taxi, external power was removed, and the generator was reset. While taxiing out for takeoff, the F-4 crew made all the transmissions as our generator continued to cycle on and off. We did not obtain an IFR clearance, nor did the pilot respond to calls from ground control or the tower. Just before we took off, with a 10-second interval on the F-4, the generator began to function normally. We headed west as the F-4 went east.

I contacted Departure Control, informed them that we were climbing VFR to 16,500 feet, and requested flight following. Departure asked if we were VFR, and I said we were. We were told to continue our flight and change frequencies (in other words, we were told to "go away"). As expected, the generator failed on climbout (now a routine occurrence), and the EPP was deployed. When electrical power was regained and the generator was once again reset, the EPP was restowed. Twice more the generator quit; it wouldn't reset the second time.

About this time I began to get the feeling that maybe everything wasn't progressing as well as the pilot would have

me believe. After the generator quit the second time and wouldn't reset, I started paying more attention to our navigation, as our system capability was degrading fast (the EPP was deployed and supplying electrical power). I had the charts and ONCs that I'd brought with me and started a DR plot using our last groundspeed, time, and heading. At this point, we decided to divert to NAS Sandstone, where runway arresting gear and A-7 parts were available. Another major problem surfaced now when our EPP failed. This made communication between the pilot and me very difficult.

When the EPP failed, our fuel state was 6,400 pounds (4,600 in the fuselage and 1,800 in the wings). I had to communicate with the pilot by shouting or passing notes – neither method was very effective. I recalled a previous discussion with a squadron A-7 pilot about fuel being a critical problem with a total electrical failure and queried the pilot about this. He assured me we had enough. I wasn't convinced and asked him a second time about our fuel. This time he admitted we had a serious fuel problem. He asked how far it was to Sandstone, and I told him about 150 miles. *I was startled when he said we didn't have enough fuel to make it.* He commenced a climb to FL230. I was really "shook" now. I could have lived with "It'll be close," but "We'll never make it" gave me a new mindset.

I began checking for the nearest field with a suitable runway. After a short discussion, the pilot decided upon a municipal field with a 7,100-foot runway at an elevation of over 4,000 feet. The distance to the field was 50 miles. En route, the pilot briefed me on ejection procedures in the event of fuel starvation. I started to make Mayday calls on my PRC radio. All calls were made in the blind, with no attempt to establish two-way radio contact.

When we saw the field, the pilot made an idle descent and blew the gear down with the flap handle in ISO. He told me that he wasn't positive that the gear were down. Later, he moved the flap handle to the up position.

We made a low pass down the long runway, looking for a wind indicator and ensuring the runway was clear. Although neither of us saw a windsock, we found out later that one was located at the intersection of two runways. On our first approach, the pilot overshot badly and waved off. (The approach was made downwind with a 9-knot tailwind.) He maintained an airspeed of 180-185 knots on the second approach until on final. This approach was much steeper than the normal 3-degree glide slope. Airspeed was allowed to bleed off to about 155 knots. Approaching touchdown, the pilot "eased gun" for an intentional hard landing to dissipate energy, but I was unaware that the landing was supposed to be intentionally hard. We did *indeed* hit hard, slightly right wing down, 270 feet beyond the threshold and on the centerline. The force of the landing blew the port tire, knocked the tailhook from the uplock, and dislodged the snubber from the nose gear holdback fitting.

I thought we were in serious trouble and ejected!

MILITARY FLIGHT PLAN			AIRCRAFT UNIT OF A
TYPE OF FLIGHT PLAN		RADIO CALL	AIRCRAFT DESIGNATI
<input type="checkbox"/> IFR <input type="checkbox"/> DVFR <input type="checkbox"/> VFR			TD CODE
INITIAL CRUISING ALTITUDE		POINT OF DEPARTURE	NAME AND NUMBER
IFR	VFR	ROUTE OF FLIGHT	
<p><i>"We hadn't planned for a possible divert, nor had we even planned on landing at our en route stop, Midwest AFB."</i></p>			
REMARKS			
RANK/HONOR		PSGR/CARGO CODE	
HOURS FUEL ON BOARD		DIST TO DESTN	ALTERNATE AIR FIELD
INST RATING		SIGNATURE OF PILOT IN COMMAND	
CREW/PASSENGER LIST- <input type="checkbox"/> Attached			
DUTY	NAME AND INITIALS		GRADE
PILOT IN COMMAND	<i>"I could have lived with 'It'll be close,' but 'We'll never make it' gave me a new mindset."</i>		



Postmortem

My pilot's decision to take off twice with a badly malfunctioning generator — a known downing discrepancy — was a clear error in judgment. He shouldn't have done it, and I shouldn't have let him do it. It was a direct violation of NATOPS and common sense. At no time did we attempt to get the generator looked at, worked on, or repaired. Furthermore, we made no effort to inform our command of the generator problem or to seek advice from our squadron.

Though I was a knowledgeable NFO and passenger, I somehow agreed to take off with a known malfunctioning electrical system. Understandably, a nonpilot aircrewman might tend to bow to the judgment of a pilot, and in this instance, I was essentially a passenger. However, as an experienced A-6 B/N, I had the knowledge and experience to know that attempting flight with an unreliable generator in a single-generator aircraft was a very bad decision. Had I attempted to dissuade my pilot from continuing the flight, or refused to fly, chances are the mishap would never have occurred. Whether it was complacency, "get-home-itis," or a misplaced trust in my pilot, I displayed poor judgment by continuing with the flight.

We failed to plan adequately. Despite our knowledge of the generator problem, we had no plan for the contingency of total electrical failure. We hadn't planned for a possible divert, nor had we even planned on landing at our en route stop, Midwest AFB. We failed to discuss such other emergencies as a no-flap landing, fuel availability with electrical failure, loss of antiskid, or a possible night divert to an unfamiliar field. Even with our improper decision to take off with the malfunctioning generator, had we decided upon a reasonable contingency plan for total electrical failure, the flight could have terminated as an incident rather than a mishap.

My pilot did not have sufficient knowledge of aircraft systems, performance capability, and emergency procedures. We were not able to exactly determine our available fuel or, based on our assumed fuel state of 1,200-1,500 pounds, compute maximum range with a Bingo profile. We could assume 2,800 pounds of usable fuel, and possibly more, assuming gravity flow. Even with 1,200 pounds, we could have reached at least three other more suitable divert fields than the one my pilot chose. He later told me he looked up total electrical failure and no-flap landing procedures in the PCL. His choice of divert field with a 7,100-foot runway at a field elevation of 4,000 feet indicates that either he

didn't read the PCL, or he failed to understand what he read. NATOPS shows a landing rollout in excess of 8,500 feet for a no-flap landing at 4,000 feet elevation with antiskid. Additionally, it states to anticipate 12,000 or more feet of landing roll under optimum conditions with no antiskid available and when no arrestment is possible.

My pilot's predicted landing roll under existing conditions of gross weight, tailwind, temperature, and field elevation should have been in excess of 16,000 feet. In this high-stress situation, he responded incorrectly. Had his thought processes been more logical, it's possible he could have made a correct assessment of the emergency and chosen a more suitable landing site than the one he did — a decision which virtually guaranteed a mishap.

The pilot didn't tell me enough about what was happening, especially of the probability of running off the runway, even though he may not have accepted it in his own mind. This left me to make up my own mind as to what my best course of action would be for survival. A few words might have prepared me for the hard touchdown and eased my mind. As it was, I was "primed" to eject from the moment I first suspected that a flameout might be imminent.

The pilot's technique for a flaps-up landing was contrary to that described in the PCL and NATOPS. While I don't know exactly what his AOA was, I have since learned that the recommended technique is a flat, shallower-than-normal approach at 18 units, normal touchdown, maximum aerodynamic braking to 140 knots, then maximum wheel braking.

He deliberately made a steeper than normal approach to a hard touchdown and shut down the engine on the runway. It was impossible to stop that *Corsair* on the runway except by arrestment. The hard landing made me believe that the aircraft had landed on the fuselage, and that's why I ejected.

It's incomprehensible to me that we knowingly wound up violating NATOPS and blatantly disregarding common sense. We failed to plan for contingencies and worked ourselves into a corner in which a mishap was assured. My pilot additionally disregarded command authority by taking a passenger on an unauthorized flight, extended our cross-country by two legs over what had been approved, and failed to consult the command when an aircraft malfunction occurred. I guess he felt we could spontaneously handle any situation. This overconfidence led to our undoing when we depended on instincts and a "we can hack it" attitude rather than basic common sense.

LETTERS

Is This Guy in Trouble?

Norfolk, VA — My initial reaction to your February cover was, "Is this guy in trouble?" Upon further contemplation, considering a C-130 in an 80-degree angle of bank, flaps down (45 degrees is max AOB with flaps extended), nose low, gear and skids down, at low altitude, I feel certain there will soon be a few more of our shipmates "on the ice" (or in the water).

C'mon guys, is this the type of cover with which to pay tribute to those serving on the ice?

LCDR Robert M. Harler
VRF-31



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• You're right. The *Hero* in question does appear to be flying at too low an altitude and too unusual an attitude. The error occurred when a photo of a C-130 flying thousands of feet higher was transposed in paint to a lower, icier environment. We'll try to level our wings, get the ball in the center, and climb back to the real world in our future attempts. Thanks for setting us straight.

Comments on "Engine Failure and $V_{mc}(\text{Air})$ in Multiengine Aircraft"

Patuxent River, MD — LT J. J. Miller's well-written article makes two very good points regarding the asymmetric flight situation. Both are of immediate and practical concern to the multiengine aviator in an engine-out condition. The first, use of optimum bank angle as recommended by NATAPOS, has both flying qualities and performance advantages. Often, only the flying qualities advantage ($V_{mc}(\text{air})$ reduction) is addressed during asymmetric power discussions. The second point emphasized in the article is that, in the recommended technique of 5 degrees wing down, the ball cannot be in the middle for the reasons cited. This point is often misunderstood, as most multiengine flight instructors have witnessed.

LCDR Dennis P. Roderick
Naval Air Test Center

Re: "Selective Flight Scheduling (NOV '81)"

Cecil Field, FL — They should have been able to see it coming. The young lieutenant was fresh out of the A-7 RAG. On the day of the mishap, his total fleet carrier experience consisted of 11 days of flight ops. Two days prior to the accident, his ninth day on board, he didn't fly. On his tenth day, he stood a day-long watch, then briefed and flew a flight which recovered at 0130. After 5 hours of sleep, he briefed again and flew a midmorning hop. After eating lunch, he briefed and launched on the hop which ended in the loss of his aircraft.

Obviously, this is not the way to transition a new pilot into fleet carrier aviation, and it's just as obvious that not even an experienced aviator should be forced to operate at this pace during routine training.

Writing the flight schedule in the demanding environment of carrier aviation can be very difficult. In these times of relatively low manning, crew rest is one of our most essential considerations.

As schedules officer for my squadron, my main tool for managing workload and crew rest is the flow sheet. Each hour of the day and night, for every pilot, is accounted for. LSO duty, watches, and meetings are all blocked in on the flow sheet first. Then the flight schedule is constructed in a manner that allows for proper crew rest. With the flow sheet, everything is right in front of you. By consulting the previous day's sheet, the early morning hops can best be scheduled. This prevents a pilot flying a late night hop from having to get up early the next morning.

The flow chart is reviewed by the operations officer and the skipper when they audit the proposed flight schedule. Scheduling conflicts are apparent where lines overlap, and a long working day is literally depicted as a long pencil line.

The finished schedule in a squadron with a pilot shortage is more delicately balanced than a condominium made of play-

ing cards. One change is the harbinger of a permutation of changes, and the flow sheet helps us manage the schedule throughout the day.

Using the sheet, it's a simple matter to see whether or not an additional sortie will "fit" or if the XO is *really* the only officer available for PRIFLY watch or if you can make "money" putting him in the spare.

It sounds easy, doesn't it? Well it *isn't* easy, but it could save someone's life. One piece of advice for schedules officers using a flow sheet — fill it out in pencil. You can always erase and change your flight schedule — it's a lot harder to recover an aircraft lost at sea.

LT Steve Minnis
VA-82

From Your Friendly LSO

Kingsville, TX — The back cover of your JAN '82 issue explains why I've been picking up all those early wires. For some reason I've always thought that the datum lights were aligned with the center cell.

LT J. Noell
COMTRAWING TWO LSO

• We can't figure out what your problem is. Our back cover illustration is an exact duplicate of a CVW-19 "Top Ten" patch made by the Ace Novelty Co. of Tokyo for the 1975-76 WESTPAC cruise. We always liked it. (P.S. You're right — we goofed!)

Correction

San Francisco, CA — An article appeared in your JAN '82 issue, titled "Do You Really Know?" I was incorrectly credited as the author. The real author is LT Carl Engelbert, a first tour aviator in VA-25. As the safety officer, I was merely the person who forwarded the article to you. The cover letter sent with the article clearly indicates LT Engelbert is the author.

Needless to say, I appreciate the notoriety, but credit should be given where it is due. LT Engelbert is proud that you found his article to be worthy to print, but disappointed that his name did not appear with it. I doubt that you can reprint the article, but please at least print some sort of correction that will get me off the hook.

LCDR M. D. Moore
VA-25

• We regret the error and look forward to more contributions from LT Engelbert.

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: **APPROACH** Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

What would YOU do to help a shipmate?

- pay the rent?
- pay the medical bills?
- fix the family car?
- educate his or her dependents?

*Of course you would...if you could.
Sometimes, though, the needs of our friends go
beyond our ability to help. Our friends suffer and we
suffer with them.*

This is where the NAVY RELIEF SOCIETY can help. The NAVY RELIEF SOCIETY was established nearly 80 years ago to help members of the Navy and Marine Corps and their families whenever and wherever hard times strike. Over 90,000 men and women receive assistance each year from NAVY RELIEF.

Your keyperson will contact you. Please give.
It's the least you can do for a shipmate.

NAVY RELIEF

Since 1904



A basic tenet of a successful safety program is the concern of every individual in the well-being of his or her shipmates. It works in safety, it works in our program to eliminate drug abuse, and it works in the personal lives of everyone in the Navy and Marine Corps. The question "What would you do to help a shipmate?" has a slightly different twist than those normally seen on the pages of APPROACH, but we at the Naval Safety Center recognize the relationship between stress caused by personal problems and safety on the job. — Ed.

POWER! POWER! POWER!



**Feeling a little LOW lately?
Leave your worries on board.**

